EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 2-44

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-12-021	09/26/2012 To 09/25/2015 Base Option Period Number 2	Eval on Hydraulic Fracturing

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 09/26/2014 To 09/25/2015

Comments:
Work shall not commence on this work assignment until September 26, 2014.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Contract Period:	Cost/Fee:	LOE:
	09/26/2012 To 09/25/2015		
This Action:			
Total:			

Work Plan / Cost Estimate Approvals

Contractor WP Dated:	Cost/Fee:	LOE:
Cumulative Approved:	Cost/Fee:	LOE:

Work Assignment Manager Name: Lisa Matthews (Signature) (Date)	Branch/Mail Code: Phone Number: 202-564-6669 FAX Number:
Project Officer Name: Meghan Hessenauer (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1040 FAX Number:
Other Agency Official Name: (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

Performance Work Statement
Contract EP-C-12-021
Work Assignment 2-44

Title: Evaluation of Information on Hydraulic Fracturing

Work Assignment Manager:
Lisa Matthews
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Period of Performance: September 26, 2014 through September 25, 2015

Background

At the request of Congress, EPA is conducting a study of the potential impacts of hydraulic fracturing for oil and gas on drinking water resources.

The contractor shall follow-up on work conducted under 1-44 of the previous option period.

The Contractor shall provide the deliverables outlined below to the EPA WAM. All text deliverables shall be compatible with MS Word and provided in both electronic and hard format.

Travel

ERG staff (senior level note taker/writer) will be required to travel to technical stakeholder meetings under Task 1. For purposes of preparing the work plan, the Contractor shall assume there will be two one-day technical stakeholder meetings in RTP, NC. All Contractor travel must be approved by the Project Officer in advance.

Confidential Business Information

At this time, EPA anticipates that only non-CBI products will go out for an external letter peer review.

Meetings

To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties.

Guidance Regarding Conferences

No single event under this Work Assignment is anticipated to exceed $20,000. The Contractor shall immediately notify the EPA Contracting Officer, PO and WAM of any anticipated event involving support for a meeting, conference, workshop, symposium, retreat, seminar or training that may potentially incur $20,000 or more in cost during performance. Conference expenses are all direct and indirect costs paid by the government and include any associated authorized travel and per diem expenses, room charges for official business, audiovisual use, light refreshments, registration fees, ground transportation and other expenses as defined by the Federal Travel Regulations. All outlays for conference preparation should be included, but the federal employee time for conference preparation should not be included. After notifying EPA of the potential to reach this threshold, the Contractor shall not proceed with the task(s) until authorized to do so by the Contracting Officer.

Limitation of Contractor Activities

The contractor will submit drafts of all deliverables to the EPA WAM for review prior to submission of the final product. The contractor will incorporate all EPA WAM comments into all final deliverables, unless otherwise agreed upon by the EPA WAM. The contractor will adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), PO and WAM.

Quality Assurance and Quality Control

All meeting summaries produced by the Contractor under this work assignment shall include a discussion of the QA/QC activities that were or shall be performed to support the deliverable. For example, the meeting summary shall include a clear discussion of the quality management strategies that were employed to control and document the information collected and used. The contractor also shall provide EPA with monthly reports of QA activities performed during implementation of this work assignment. These monthly QA reports shall identify QA activities performed to support implementation of this work assignment, problems encountered, and corrective actions taken. If desired, the contractor may include this as a part of the contract required monthly financial/technical progress report.

WORK ASSIGNMENT TASKS

Task 0 – PREPARE WORK PLAN AND MONTHLY REPORTS

As part of this work assignment, the Contractor shall prepare a detailed work plan that describes the Contractor's approach to each of the following tasks, and includes a proposed schedule, staffing plan and budget for the overall work assignment. The Contractor's work plan shall include estimated LOE by task. The work plan also shall include procedures to be used for determining absence of conflict of interest.

Deliverable 0A - Within 3 working days of receipt of the work assignment, the Contractor shall schedule a conference call with the WAM and appropriate EPA and Contractor staff to clarify outstanding questions and confirm the schedule and specific tasks.

Deliverable 0B - The contractor shall submit detailed work plan in accordance with contract requirements.

Deliverable 0C - The contractor shall provide EPA with monthly financial/technical progress reports. These monthly reports shall identify QA/QC activities performed to support implementation of this work assignment, problems encountered, and corrective actions taken.

TASK 1 – MEETING SUPPORT

EPA has enhanced the stakeholder outreach efforts related to its *Study of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources* (Hydraulic Fracturing Study). As part of this effort, EPA will regularly engage technical experts from key stakeholder groups, including industry, non-governmental organizations, other federal agencies, state and local governments, tribes and the academic community, in an effort to assure that we have ongoing access to a broad range of expertise and data outside the Agency, improve public understanding of the goals and design of the study, obtain timely and constructive feedback on data and analysis developed in the study, and assure that EPA is current on changes in industry practices and technologies so the report of results reflects an up-to-date picture of hydraulic fracturing operations. Information sharing among technical experts from diverse backgrounds and interests is important to ensure that EPA has all the information it needs to provide the best available science.

EPA plans to invite all the participants from the 2012 and 2013 technical roundtables to a one day meeting in early December 2014 at the EPA-RTP Campus Main Building Auditorium in Research Triangle Park, NC. The purpose of the meeting is to share results of published research and plans for EPA's draft assessment report. The Contractor shall support this technical roundtable meeting by preparing nametags, placards and sign, and preparing a concise meeting summary report that summarizes the presentations and discussion highlights.
EPA intends to receive timely feedback on the study projects and draft assessment report through the technical roundtable and additional meetings with states. For purposes of preparing the work plan, the Contractor shall assume one additional one-day technical stakeholder meeting in RTP, NC.

The meeting summary reports must be accurate, complete, understandable and carefully composed so that it is understandable for people who were not at the meeting. Draft reports will be due within 10 business days following the meeting. Final reports will be due within 5 business days of receipt of all comments from EPA. The Contractor will prepare a 508-compliant

pdf of the final meeting summary report. EPA plans to post the final meeting summary report on the study website for the public in a timely manner.

EPA will handle all other planning and coordination for these technical stakeholder meetings, including send and track invitations, organize and coordinate any pre-meeting calls, liaison with attendees and presenters, track and download presenters' slides, and prepare meeting packets.

ERG staff (senior level note taker/writer) will be required to travel to the technical meetings. All meetings will be held in EPA space. The technical roundtable will have approximately 50 external experts plus EPA staff.

Deliverable 1A - The Contractor shall provide nametags and placards and sign 1 week prior to the meeting.

Deliverable 1B - Draft meeting summary reports will be due within 10 business days following the meeting.

Deliverable 1C - Final meeting summary reports will be due within 5 business days of receipt of all comments from EPA. The Contractor will provide a 508-compliant pdf of the final meeting summary report for web posting.

TASK 2 – LETTER REVIEWS

The contractor shall plan, organize and conduct letter reviews of several projects being conducted under the Hydraulic Fracturing Study, in accordance with EPA's Peer Review Handbook.

None of the projects associated with the Hydraulic Fracturing Study are designated as "influential scientific information" (ISI). Publications resulting from EPA research projects will be considered together with scientific literature in the 2014 draft report. This report of results is designated a "highly influential scientific assessment" (HISA).

At this time, we estimate an additional 6 reports for letter review. One of these reports is not expected to be ready for external review until Summer 2015.

Approximately 3-5 experts will participate in each letter review. The contractor shall attempt to balance the group of experts be selecting reviewers from academia, government, industry and nongovernmental organizations. The Contractor shall identify and select peer reviewers with appropriate expertise, determine absence of conflict of interest, establish schedules, and submit the individual expert reports. The Contractor shall perform all activities under this work assignment in accordance with Agency Peer Review Policy procedures outlined in the following publication, Peer Review Handbook, 3rd Edition (EPA 100-B-06-002).

The goal of this peer review is individual expert reports reflecting the independent scientific judgment of the reviewers in response to the charge questions developed by EPA for a thorough and meaningful assessment of the Agency's work product. The peer review should provide input on the reasonableness of judgments made from the scientific evidence. The result should be an independent determination by each peer reviewer as to the appropriateness of (a) the assumptions made and hypotheses postulated, (b) the methodology utilized, (c) the quality and relevance of the data and information, (d) the accuracy of the analytic results, and (e) whether the conclusions reached are supported.

2.1 Identify Peer Reviewer Pool

The Contractor shall prepare and submit to the EPA WAM the credentials of up to ten (10) technical experts who are qualified to independently peer review the report and supporting documentation according to EPA's peer review guidelines from whom the contractor shall select and secure arrangements with approximately three (3) to five (5). The search and selection criteria should include the consideration of experience, demonstrated expertise and professional record as demonstrated by awards, publications, service to relevant professional societies and affiliations. The experts must be available to participate in the letter review, and shall be drawn from academia, industry, government and nongovernmental organizations. The contractor shall not compensate or reimburse federal personnel. Provisions for compensation and reimbursement of Contractor-secured state personnel vary by state. The Contractor shall provide the EPA WAM with the curriculum vitae (CVs) of all experts.

Prior to the contractor entering into formal agreements with any of the experts, the proposed list of experts, including CV, summary biographical information supporting his/her expertise, certification of absence of conflict of interest and other supporting information, for each expert, shall be provided to the WAM for review to ensure adherence to the technical requirements of the work assignment. The EPA will review and approve the potential pool of peer reviewers based on their credentials and expertise to fulfill the role of peer reviewers of EPA technical documents. The EPA may reject the use of a particular candidate based on qualifications, conflicts of interest, or past direct involvement with the work under review. In such cases, the Contractor shall find suitable replacements to augment the pool of potential peer reviewers. The EPA shall review and consent to the qualifications of the pool of peer reviewer candidates, but the ultimate selection of peer reviewers from the approved pool shall be the responsibility of the Contractor.

Areas of Expertise Required

It is important that the correct expertise be engaged in these reviews. The peer reviewers must have the background in areas of expertise to be identified by EPA and be considered a recognized expert in one of these scientific areas. EPA will likely need experts in the following areas: statistics, database development/management, petroleum engineering, stimulation design, chemical engineering, hydrogeology, spill response, fluid containment (pits,

impoundments, tankers), hydraulic fracturing operations, water treatment, wastewater treatment, hydrology/hydrogeology, contaminant fate and transport modeling, geochemistry and environmental chemistry.

2.2 Select Peer Reviewers

Following the WAM's review, review of the peer reviewer pool, the Contractor shall select 3-5 peer reviewers from the pool of potential peer reviewers reviewed by the EPA WAM, and initiate the peer review effort. The Contractor shall send electronic letters of invitation to each reviewer. The emails shall also include review materials designated by the EPA WAM, the charge to participants, and schedule for the review. Copies of all emails shall be copied to the Project Officer and the WAM. The Contractor also shall provide to the peer reviewers any supplemental information requested by the reviewers and deemed necessary by the EPA WAM to complete a thorough review.

2.3 Coordinate Peer Review

The Contractor shall coordinate with the peer reviewers and monitor peer reviewers' progress to complete the review within the required time and LOE constraints described in this work assignment. Peer reviewers shall conduct their review according to the guidelines detailed in the charge to peer reviewers. Peer reviewers shall respond to the specific questions asked in the charge. The peer review must be completed within **10 business days** after the peer reviewers have received the documents. It is not necessary that the peer reviewers jointly reach consensus on their findings and recommendations. It is expected that no single peer reviewer would expend more than 16-20 hours performing the review, depending upon the complexity of the document; expending less than 16-20 hours is acceptable.

Charge Questions for Peer Reviewers

Below are general charge questions. EPA may modify this set of questions or add questions that are specific to the project (unique issues):

1) Is the document logical, clear and concise? Please explain.
2) Were scientific and statistical assumptions explained and are they appropriate? Please explain.
3) Has the appropriate literature been cited? Explain. Are there relevant publicly available, peer-reviewed papers that have not been included but should be? Please provide relevant citations.
4) Is the methodology as presented and described in the report supported by sound scientific principles, and is it scientifically appropriate for meeting the objectives of the project? Please comment on the methods.
5) Please comment on the appropriateness of the models used for XXXX
    a. Is the EPA method clearly described and supported? Does the model provide a valid and useful framework for assessing XX? Does the model address the

appropriate processes and interactions? Are the model's predictions supported by the analyses and results?

b. Are uncertainties in the EPA model identified and characterized?

6) Specifically in regards to the analysis:
   a. Were sufficient information and explanations given that describes how the data were used and what criteria were used to determine the suitability of the data? Please comment on the quality of the data and the validity of the analytical techniques.
   b. Were these criteria adequate and appropriate? Was the methodology appropriate? Please explain.
7) Are the results and conclusions presented in the report clearly stated and supported by the data and analyses? Are they appropriate for meeting the objectives of the project? If not, how could the presentation of the results be improved?
8) Are scientific assumptions and uncertainties clearly articulated and are they accurate? If not, how could they be better explained?

2.4 Report Preparation

Individual expert reviewer reports shall be submitted to the Contractor within 10 business days after receipt of the documents. An electronic copy of the final expert reviewer individual reports (in MS Word format) shall be delivered to the EPA WAM as soon as they are available (1-2 business days). The contractor shall be responsible for paying the paid reviewers fees (except Federal personnel) as appropriate.

Deliverable 2.1 - Identify peer reviewer pool: The Contractor shall submit a list and credentials for up to ten potential peer reviewers (include for each expert CV, summary biographical information supporting his/her expertise, certification of absence of conflict of interest) within one week after Contractor receipt of the report and any supporting documents.

Deliverable 2.2 - Select peer reviewers: The Contractor shall select and secure arrangements with approximately 3-5 experts who will provide the external review within one week after EPA review of the peer review pool.

Deliverable 2.3 - Coordinate peer review: The peer review should commence as soon as possible after arrangements with reviewers are in place. Contractor delivers materials, charge questions and timeline to experts for review upon receipt from EPA. The Contractor shall complete the peer review within 10 business days after the peer reviewers have received the documents.

Deliverable 2.4 - Report preparation: Final expert reviewer individual reports shall be delivered to the EPA WAM (electronic copy in MS Word format) as soon as they are available (within 1-2 business days).

TASK 3 – GENERAL TECHNICAL SUPPORT

Using information provided by the EPA WAM, along with information gathered or developed by the Contractor, the Contractor shall assemble information related to hydraulic fracturing as specified by the EPA WAM through written technical direction. The tasks may include work such as preparing 508-compliant pdfs of reports and QAPPs, presentations, or preparing materials to support EPA's stakeholder outreach activities. For purposes of preparing a work plan, the contractor shall assume there will be approximately 20 final journal articles/EPA reports and corresponding external review comments and EPA response to comments documents plus approximately 5 QAPPS to make 508-compliant pdfs requiring quick turn-around.

Quality Assurance and Quality Control

Amy technical direction that involves the collection and/or analysis of environmental data will be carried out in accordance with ERG's existing EPA-approved Quality Assurance Project Plan (QAPP).

Deliverable 4.1 - Assignment due within 5 business days of receiving written technical direction or as stated in the technical direction.

CONFLICT OF INTEREST

The Contractor shall follow Conflict of Interest procedures for Task Orders in accordance with Contract Clauses: Ordering Procedures, Organizational Conflicts of Interest (EPAAR 1552.209-71), Notification of Conflicts of Interest Regarding Personnel (EPAAR 1552.209-73), and "Conflict of Interest Evaluation for Task Orders."

SPECIAL CONDITIONS/ASSUMPTIONS

Disclosure of information used in Conflict of Interest evaluation

The financial and professional information obtained by the contractor as part of the evaluation to determine existence of actual or potential conflict of interest is considered private and should not be disclosed to EPA or outside entities except as required by law or requested as part of a formal investigation by the EPA Office of Inspector General, General Accountability Office, or Congressional Committee.

Notice regarding guidance provided under this task order

Guidance is strictly limited to technical and analytical support. The Contractor shall not engage in activities of an inherent governmental nature such as the following:

1. Formulation of Agency Policy
2. Selection of Agency priorities
3. Development of Agency regulations

Should the Contractor receive any instruction from an EPA staff person that the Contractor ascertains to fall into any of these categories or goes beyond the scope of the contract or Task Order, the Contractor shall immediately contact the PO or WAM.

ACCEPTANCE CRITERIA

Deliverables shall be provided to the WAM as prescribed by the schedule of deliverables.

MANAGEMENT CONTROLS

Frequent phone calls and/or meetings between the EPA WAM and contractor work assignment managers are required to discuss any questions that may arise during performance or completion of this work assignment. The contractor shall document these meetings and submit copies of this correspondence to the EPA WAM.

Per the technical direction clause EPAAR 1552.237-71 of the contract, the EPA PO and the EPA WAM are the only representatives of the CO authorized to provide technical direction. Per the technical direction clause, the CO and PO will be provided with copies of all technical direction.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 2-44

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-12-021	09/26/2012 To 09/25/2015 Base Option Period Number 2	Eval on Hydraulic Fracturing

Contractor	Specify Section and paragraph of Contract SOW
EASTERN RESEARCH GROUP, INC.	See PWS

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [X] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 09/26/2014 To 09/25/2015

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*): ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period:	Cost/Fee:	LOE:
09/26/2012 To 09/25/2015	$0.00	0
This Action:	$216,003.00	2,147
Total:	$216,003.00	2,147

Work Plan / Cost Estimate Approvals

	Cost/Fee:	LOE:
Contractor WP Dated: 10/23/2014	$216,003.00	2,147
Cumulative Approved:	$216,003.00	2,147

Work Assignment Manager Name: Lisa Matthews (Signature) (Date)	Branch/Mail Code: Phone Number: 202-564-6669 FAX Number:
Project Officer Name: Meghan Hessenauer (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1040 FAX Number:
Other Agency Official Name (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 2-46

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-12-021	09/26/2012 To 09/25/2015	Nutrient Challenge Support
	Base Option Period Number 2	

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 09/26/2014 To 09/25/2015

Comments:
Work shall not commence on this work assignment until September 26, 2014.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period:	Cost/Fee:	LOE:
09/26/2012 To 09/25/2015		
This Action:		
Total:		

Work Plan / Cost Estimate Approvals

	Cost/Fee:	LOE:
Contractor WP Dated:		
Cumulative Approved:		

Work Assignment Manager Name: Lael Butler (Signature) (Date)	Branch/Mail Code: Phone Number: 228-688-1576 FAX Number:
Project Officer Name: Meghan Hessenauer (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1040 FAX Number:
Other Agency Official Name (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

Performance Work Statement
Contract EP-C-12-021
Work Assignment 2-46

TITLE: Interagency Nutrient Challenge Visioneering Support

WORK ASSIGNMENT MANAGER:
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Room 232
Stennis Space Center, MS 39529-6000
butler.lael@epa.gov

PERIOD OF PERFORMANCE: September 26, 2014 through September 25, 2015

GENERAL REQUIREMENTS:

Travel: EPA anticipates the need for non-local travel by the contractor employees and/or subcontractors to support the scope of this work assignment.

Confidential Business Information: The contractor shall, at all times, adhere to Confidential Business Information (CBI) procedures when handling industry information. The contractor shall manage all reports, documents, and other materials and all draft documents developed under this work assignment in accordance with the procedures set forth in the Office of Science and Technology Confidential Business Information (OST-CBI) Application Security Plan (June 10, 2003), or its successor approved plans.

Meetings: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties or visiting field sites. NOTE: This Work Assignment has received authorization to proceed with the meeting exceeding $20,000. (No single event under this Work Assignment is anticipated to exceed $20,000. The Contractor shall immediately notify the EPA Contracting Officer, PO and WAM of any anticipated event involving support for a meeting, conference, workshop, symposium, retreat, seminar or training that may potentially incur $20,000 or more in cost during performance. Conference expenses are all direct and indirect costs paid by the government and include any associated authorized travel and per diem expenses, room charges for official business, audiovisual use, light refreshments, registration fees, ground transportation and other expenses as defined by the Federal Travel Regulations. All outlays for conference preparation should be included, but the federal employee time for conference preparation should not be included. After notifying EPA of the potential to reach this threshold, the Contractor shall not proceed with the task(s) until authorized to do so by the Contracting Officer.)

Limitation of Contractor Activities: The contractor shall submit drafts of all deliverables to the Work Assignment Manager (WAM) for review prior to submission of the final product. The

contractor shall incorporate all WAM comments into all final deliverables, unless otherwise agreed upon by the WAM. The contractor shall adhere to all applicable EPA management control procedures as implemented by the Contracting Officer (CO), Project Officer (PO), and WAM.

PURPOSE:

Current Federal engagement and interaction in the realm of nutrient pollution and management builds on the known interests and efforts of private sector philanthropists in addressing nutrient pollution, most notable of which are the development of a $1M Tulane University Water Prize to mitigate nitrogen-driven hypoxia in the Gulf of Mexico.

In order to coordinate these cross-organizational efforts, the EPA will continue to identify additional areas for research and prizes; and, support efforts which include, but are not limited to, visioneering meetings, principle meetings, workshops, conference calls, videoconference communications or webinars. Communicating the quickly changing opportunities and gaps in today's science, technology and community-based solutions continually moves the development of one or more nutrient prizes. This will be undertaken in collaboration with partners and stakeholders, and supported by experts in prize design.

Where possible and appropriate, in person meetings will be succinct (as few days as needed to accomplish agenda specific items/topics) and include challenge partners, experts, stakeholders; plus, facilitators, with an emphasis on the full spectrum of technological and social challenge opportunities. Existing and potential future prize partners and philanthropic institutions will be encouraged to build on this opportunity as they advance their respective nutrient prizes. Federal and state agencies will be engaged to contribute technical expertise and facilities support.

SCOPE OF WORK:

The Contractor shall liaise with the EPA on the planning and execution of all nutrient challenge meetings and any associated partner meetings, principal meetings, workshops, conference calls, videoconference communications or webinars. Specifically, the Contractor shall work to support the development of the challenge rules and language and facilitate overall input. The Contractor shall perform duties associated with the development of meetings, workshops, calls or other communication venues.

TASKS:

0. Program management:

The Contractor shall develop a work plan describing the necessary steps and estimated hours to complete each of the tasks included in this work assignment amendment. The work plan shall also include a list of the key personnel to participate in the work assignment. Additionally, the Contractor shall provide an estimate of all direct costs (i.e. computer costs, transcription, etc.) that are anticipated under this work assignment.

The Contractor shall prepare and deliver monthly progress reports to the Work Assignment Manager, Technical Lead, and Project Officer. These reports shall list, by task, the amount of work completed, and should include a table of hours by personnel for each task. The contractor shall inform the WAM, Technical Lead, and PO in writing when 50%, 75%, and 90% of the allocated hours and dollars have been expended.

TASK 0 – DELIVERABLES	Due Date
Work Plan	In accordance with contract requirements
Progress Reports	Monthly

1. Meeting/Webinar/Conference Call/Other Communication:

The Contractor shall initiate and/or continue conference calls with the Federal interagency work group on nutrient prizes coordinated by OSTP for planning, coordination and communication. The calls may vary in length, not to exceed one hour each, and the Contractor shall take notes and distribute after the call. The Contractor shall supplement the work group with other non-Federal partners as needed to optimize the task(s) completion; all in consultation with the EPA and the prize expert, where appropriate.

The Contractor, with input from EPA, shall prepare communication materials for use in the planning and completion of future nutrient challenge work as well as work in other related areas.

The Contractor, with input from EPA, shall provide support for needed aspects of the nutrient sensor challenge(s) in the effort to stimulate development and marketing of an affordable nutrient sensor, including but not limited to, the development of specific challenge elements, a timeline(s), identify/review partners and partnerships to enlarge the working group, suggest and/or implement involvement, develop scope and/or roll-out plan for the challenge(s); and, serve as a liaison with others as needed (ACT, Hypoxia Task Force, Academia, Non-Government Organizations), as needed.

The Contractor, with input from EPA, shall perform additional tasks, including but not limited to, support for subsequent visioneering meetings, principal meetings, workshops, bi-weekly partner conference calls, weekly project team conference calls, videoconference events or webinars.

The Contract, with input from EPA, shall provide other communication strategy support including web input, fact sheet input/development, outreach, marketing product input/development, publicity, and other administrative support.

TASK 1 – DELIVERABLES	Due Date
Meeting/Webinar/Call/Communication	Via Technical Direction from the WAM

Travel:

The EPA anticipates the need for local and non-local travel by the contractor employees and/or subcontractors to support the scope of this work assignment and/or amendment. The Contractor will provide specific travel details and costs in a request for travel approval submitted for WAM review and Project Officer (PO) signature before each trip occurs (as specified by the contract per clause H.32).

Management Controls:

The Contractor shall contact the WAM to present and discuss the work plan for this work assignment and/or amendment before it is approved by the EPA CO. The duration of this work assignment is from date of issuance through the end of the performance period.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 2-46

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-12-021	09/26/2012 To 09/25/2015 Base Option Period Number 2	Nutrient Challenge Support

Contractor	Specify Section and paragraph of Contract SOW
EASTERN RESEARCH GROUP, INC.	See PWS

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Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/26/2012 To 09/25/2015	$0.00	0
This Action:	$100,347.00	918
Total:	$100,347.00	918

Work Plan / Cost Estimate Approvals

	Cost/Fee:	LOE:
Contractor WP Dated: 10/22/2014	$100,347.00	918
Cumulative Approved:	$100,347.00	918

Work Assignment Manager Name: Lael Butler (Signature) (Date)	Branch/Mail Code: Phone Number: 228-688-1576 FAX Number:
Project Officer Name: Meghan Hessenauer (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1040 FAX Number:
Other Agency Official Name (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 2-46

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-12-021	09/26/2012 To 09/25/2015 Base Option Period Number 2	Nutrient Challenge Support

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☒ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 05/28/2015 To 09/25/2015

Comments:
This Work Plan Approval incorporates Amendment 1.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/26/2012 To 09/25/2015	$100,347.00	918
This Action:	$172,876.00	1,478
Total:	$273,223.00	2,396

Work Plan / Cost Estimate Approvals

	Cost/Fee:	LOE:
Contractor WP Dated: 06/23/2015	$172,876.00	1,478
Cumulative Approved:	$273,223.00	2,396

Work Assignment Manager Name: Lael Butler (Signature) (Date)	Branch/Mail Code: Phone Number: 228-688-1576 FAX Number:
Project Officer Name: Meghan Hessenauer (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1040 FAX Number:
Other Agency Official Name (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

PERFORMANCE WORK STATEMENT
CONTRACT EP-C-12-021
WORK ASSIGNMENT 2-46
AMENDMENT 1

Title: Interagency Nutrient Challenge Visioneering Support

Work Assignment Manager (WAM):

Lael H. Butler
Environmental Scientist
U. S. EPA Gulf of Mexico Program Office
Building 1100, Room 232
Stennis Space Center, MS 39529-6000
(228) 688-15786
butler.lael@epa.gov

Period of Performance: May 28, 2015 through September 25, 2015

Background

Recent years have seen advances in the research and development of newer, more portable and sometimes, lower cost water quality sensors and analytical capabilities. These developments, along with the proliferation of real-time software platforms and hydrologic models provide new opportunities for local, State, Regional, Tribes and Federal organizations, along with communities, to not only monitor water quality in real-time, but be able to better respond to emergency situations, encourage compliance with regulations and manage highly variable water quality and quantity.

The U. S. Environmental Protection Agency's (EPA) Office of Research and Development is continuing to lead efforts by a federal interagency Partner workgroup by identifying additional areas for research and prizes; and, supporting efforts which include, but are not limited to, visioneering meetings, principle meetings, workshops, conference calls, videoconference communications, or webinars,

Under the existing contract and current work assignment, the Contractor has been providing, and will continue to provide, expertise in nutrient pollution, water resources management and water quality issues; along with meeting planning and stakeholder outreach/engagement. All current Contractor tasks will continue.

Scope of Work

The Contractor shall liaise with the EPA on the planning and execution of all nutrient challenge meetings and any associated partner meetings, principle meetings, workshops, conference calls, videoconference communications, webinars, beta-test events, social media marketing; and, other

venues as directed. Specifically, the Contractor shall perform duties associated with the development of meetings, workshops, calls and all other communication venues.

Tasks

1. **Communication Support:**

    a. The Contractor will initiate and/or continue conference calls with the Federal interagency work group on nutrient prizes coordinated by OSTP for planning, coordination and communication. The calls may vary in length, not to exceed one hour each, and the Contractor shall take notes and distribute after the call. The Contractor shall supplement the work group with other non-Federal partners as needed to optimize the task(s) completion; all in consultation with the EPA and the prize expert, where appropriate.

    b. The Contractor, with input from EPA, shall prepare communication materials for use in the planning and completion of future nutrient challenge work as well as work in other related areas.

    c. The Contractor, with input from EPA, shall provide support for needed aspects of the nutrient sensor challenge(s) in the effort to stimulate development and marketing of an affordable nutrient sensor, including but not limited to, the development of specific challenge elements, a timeline(s), identify/review partners and partnerships to enlarge the working group, suggest and/or implement involvement, develop scope and/or roll-out plan for the challenge(s); and, serve as a liaison with others as needed (ACT, Hypoxia Task Force, Academia, Non-Government Organizations), as needed.

    d. The Contractor, with input from EPA, shall perform additional tasks, including but not limited to, support for subsequent visioneering meetings, principal meetings, workshops, bi-weekly partner conference calls, weekly project team conference calls, videoconference events, webinars and in-person meetings.

    e. The Contractor, with input from EPA, shall provide other communication strategy support including web input, fact sheet input/development, outreach, marketing product input/development, publicity, and other administrative support.

    Note: Hours are being added for these tasks.

2. **Workshop(s) & Webinars**

    At the direction of EPA, the Contractor shall organize and execute a series of webinars and a workshop(s) with the goal of identifying and summarizing needs and requirements of innovative, existing, and/or emerging water sensor and data management technologies for the management of water quality in real-time short and long-term planning.

The Contractor shall work with the EPA WAM to determine speakers and topics for all communication events. The Contractor will provide: (1) a draft agenda, (2) a list of participants, potential speakers, moderator, other key specific audience participants and participant categories.

For Webinars, the Contractor, with input from EPA, will:

a. Schedule 4-6 webinars approximately 1 hour in length to highlight EPA uses and/or needs of new water sensor technology.
b. Webinars will be recorded and made available on a website for later viewing.
c. Webinars will allow for questions to be collected, responses made and summarized in a single report document.
d. A "SharePoint" directory may be developed to allow people to make comments.

For the Workshop(s):

a. The Workshop (s) will have a select number of invited speaker presentations followed by question/answer sessions.
b. The Contractor shall construct and perform logistical tasks including, but not limited to, securing room blocks, constructing registration website and all instructions, secure release forms for presentations, obtain/organize their power point presentations, coordinate with the EPA audiovisual support personnel, manage/track overall timing and flow of the Workshop sessions; and arrange for flip charts, stick pins, markers, etc., as needed.
c. The Contractor shall construct Workshop information packets, as needed.
d. The Workshop(s) will be broadcast via webinar or similar technology whereby interested parties can remotely participate (see/hear) to the presentations.
e. The Workshop(s) shall also include EPA panel discussions on needs and requirements.
f. The Contractor will staff the registration table, providing participant name tags, information packets, and EPA handouts.
g. The Contractor shall take notes during the workshop to inform the report after the meeting.
h. A report(s) shall be generated summarizing the results and discussion so that participants can share and discuss.
i. The Contractor will post the presentations after the Workshop(s) and provide edited notes to EPA.

Note: Hours are added for these tasks.

Deliverables and Schedule

1. The Contractor shall develop an amended work plan in accordance with contract requirements.
2. The Contractor shall participate in periodic conference calls to discuss progress and issues with the Workshop team(s).
3. The Contractor shall schedule webinar events, necessary web and phone capabilities for 4-6 webinars and expect to schedule approximately 1 webinar per month leading up a workshop(s).
4. The Contractor will record all webinars and host them on an internet with within 10 days of the webinar.
5. The Contractor will document all questions asked during webinars and/or workshops.
6. The Contractor shall provide a save the date email for webinars/workshops.
7. The Contractor shall set up webinar and/or workshop registration sites.
8. The Contractor shall provide draft workshop information packet 10 days prior to any workshop.
9. The Contractor shall provide a list of all webinar/workshop(s) registrants to EPA within 10 days of conclusion of the event.
10. The Contract shall post available power point presentations with the approvals on a password protected ftp site within 10 working days of a webinar/workshop(s).
11. The Contractor shall provide notes taken during webinars/workshops within 10 working days of conclusion.

Travel to include:

The EPA anticipates the need for local and non-local travel by the Contractor employees and/or subcontractors to support the scope of work. The Contractor will provide specific travel details and costs in a request for travel approval submitted for WAM review and Project Officer (PO) signature before each trip occurs (as specified by the contract per clause H.32).

Management Controls to change the last paragraph only:

The Contractor shall contact the WAM to present and discuss the work plan for this work assignment and/or amendment before it is approved by the EPA CO. The duration of this work assignment is from date of issuance through the end of the performance period (September 30, 2016).

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 2-46

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-12-021	09/26/2012 To 09/25/2015 Base Option Period Number 2	Nutrient Challenge Support

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☒ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 05/28/2015 To 09/25/2015

Comments:
This Work Plan Approval incorporates Amendment 1.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
2										
3										
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Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/26/2012 To 09/25/2015	$100,347.00	918
This Action:	$172,876.00	1,478
Total:	$273,223.00	2,396

Work Plan / Cost Estimate Approvals

	Cost/Fee:	LOE:
Contractor WP Dated: 06/23/2015	$172,876.00	1,478
Cumulative Approved:	$273,223.00	2,396

Work Assignment Manager Name: Lael Butler (Signature) (Date)	Branch/Mail Code: Phone Number: 228-688-1576 FAX Number:
Project Officer Name: Meghan Hessenauer (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1040 FAX Number:
Other Agency Official Name (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 2-52

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-12-021	09/26/2012 To 09/25/2015	BASINS Support and Maintenance
	Base Option Period Number 2	

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 07/08/2015 To 09/25/2015

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (*Max 2*): ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
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Authorized Work Assignment Ceiling

Contract Period: 09/26/2012 To 09/25/2015 — Cost/Fee: — LOE:

This Action:

Total:

Work Plan / Cost Estimate Approvals

Contractor WP Dated: — Cost/Fee: — LOE:

Cumulative Approved: — Cost/Fee: — LOE:

Work Assignment Manager Name: Rajbir Parmar (Signature) (Date)	Branch/Mail Code: Phone Number: 706-355-8306 FAX Number:
Project Officer Name: Meghan Hessenauer (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1040 FAX Number:
Other Agency Official Name: (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

PERFORMANCE WORK STATEMENT
CONTRACT EP-C-12-021
WORK ASSIGNMENT 2-52

TITLE: BASINS Support and Maintenance

WORK ASSIGNMENT MANAGER (WAM)

Rajbir Parmar
Phone: 706-355-8306
parmar.rajbir@epa.gov

PERIOD OF PERFORMANCE: July 8, 2015 through September 25, 2015

BACKGROUND

BASINS (Better Assessment Science Integrating point and Nonpoint Sources) is a multipurpose environmental analysis system designed for regional, state, and local agencies that perform watershed and water quality-based studies. This system makes it possible to quickly assess large amounts of point and non-point source data in a format that is easy to use and understand. Installed on a personal computer, BASINS allows the user to assess water quality at selected stream sites or throughout an entire watershed. This invaluable tool integrates environmental data, analytical tools, and modeling programs to support cost-effective approaches to watershed management and environmental protection, including the development of Total Maximum Daily Loads (TMDLs).

BASINS can be accessed at: http://water.epa.gov/scitech/datait/models/basins/index.cfm. Documentation of where BASINS data is hosted will be provided upon request.

PURPOSE

The purpose of this work assignment is to:

- Provide support to user community, primarily by responding to inquiries received through inbox.
- Maintain BASINS current by fixing program bugs and/or developing program enhancements to facilitate use.

SPECIALIZED SKILLS

The Contractor shall provide experts who are experienced in using BASINS and have a thorough understanding of its operation and the models contained within the system. In particular expertise shall be available in the following:

Models: HSPD, DFLOW, SWAT, PLOAD, WASP, SWMM, and GWLF – expertise on model setup, calibration, data sources, and model output interpretation.

GIS: ArcView, ArcGIS, and MapWindow software; GIS data; metadata and incorporation of user-supplied data.

Systems: Using BASINS and its components under Windows XP, and Windows 7, and Windows Vista operating systems.

Utilities: WDM Utility, HSPFParm, HSPF Expert System, WinHSPF, Bacteria spreadsheet, GenScn, and PEST driver.

Programming: Object-oriented programming such as Visual Basic, C+, C#, .NET, Active X, FORTRAN, and other languages.

The Contractor must also have experience working to publish updates to a system in EPA's servers and web environment.

TASKS

TASK 1 – Kick-off Meeting

Prior to beginning work on this Work Assignment, the EPA Work Assignment Manager (WAM) shall schedule a "Kick Off" meeting with the Contractor and quality assurance officer. The agenda for this meeting will include the following items: (a) overview of the goals of the Work Assignment; (b) review and discussion of individual tasks; (c) roles and responsibilities of the WAM, and of the Contractor; (c) any questions or concerns regarding QA/QC actions; (d) review the schedule of milestones and expectations; and (e) other items as requested either by the WAM or the Contractor.

TASK 2: Quality Assurance / Quality Control

Quality Assurance (QA) is an important component of EPA's work to assure that minimum quality standards are attained. The contractor shall adhere to the Quality Management Plan (QMP) customized for this contract. The Contractor shall review and revise the existing Quality Assurance Project Plan (QAPP) to reflect the tasks in this Work Assignment and Quality Management Procedures corresponding to this contract. Note that the existing QAPP for latest round of BASINS enhancements will be provided as a starting point. The Contractor shall notify the EPA WAM at any time during the Work Assignment if changes to the QAPP are warranted (e.g., due to organizational changes, revised technical approaches or other unforeseen circumstance).

If, during the Period of Performance of this Work Assignment, the EPA WAM provides technical direction that revisions to the QAPP are determined to be necessary, the Contractor shall submit a revised QAPP, including the revision summary.

When preparing this "draft" revised version of the QAPP, the Contractor shall ensure that it is written in an active voice and shall include a "version history page" that summarizes changes made. The Contractor also shall provide the EPA WAM with copies of any modified SOPs or checklists.

The contractor shall provide a draft QAPP to the EPA WAM within 10 business days. The EPA WAM will review the draft QAPP and provide the Contractor with written approval or

comments. The Contractor shall provide a final QAPP that responds to EPA's written comments within 5 business days.

TASK 3: Develop Work Plan and Manage Project

The Contractor shall prepare a Work Plan within 30 days of receipt of this work assignment for the tasks outlined here. The Contractor shall also provide management and administrative support related to this work assignment, including the following:

- Perform financial oversight and prepare monthly progress reports to the EPA WAM. These progress reports shall include a detailed breakdown of costs and hours, a progress report on each task, problems encountered, including with quality assurance/quality control, and percent completion of the work. The monthly progress reports shall include a summary of all QA activities performed during the reporting period.
- Track progress toward completion of tasks against costs and LOE expended.
- Perform quality assurance checks of products produced in these tasks.
- Assist in resolving internal problems associated with completion of tasks or costs.

Should an issue arise, the Contractor shall contact the EPA WAM to inform of the problem and provide options for resolution. The Contractor shall provide follow up by email or phone until the issue is resolved.

TASK 4: Provide Technical Support for BASINS

On occasion, requests on how to use BASINS for a particular application require a more in-depth response than that anticipated for routine technical support questions. In response to technical direction from the EPA WAM, the Contractor shall provide communication with step-by-step instructions to BASINS users in utilizing a particular function of the BASINS system.

In providing support, the Contractor shall adhere to the following procedures:

- Requests for BASINS support will be issued via written technical direction from the EPA WAM, where the EPA WAM has decided the request requires the Contractor's efforts. Requests for support may arise from the BASINS Help email box, the BASINS listserve, or questions addressed individually to EPA staff.
- Contractor support will be supplied via phone, electronic mail, conference calls, or video calls. Contractor responses to questions posted on the BASINS Help email will send a copy back to the appropriate Help email for future reference. Responses by email will copy the EPA WAM.
- Requests for enhancement to the BASINS code or creation of custom BASINS data sets will be sent to the EPA WAM for approval prior to initiation of any such work.
- The Contractor will inform the EPA WAM of the nature of the technical support provided, as well as the result.

TASK 5: Perform Model and Tool Updates, Enhancements, and Bug Fixes

During the course of using the BASINS system, users will likely report program bugs and/or program enhancements that would facilitate use of the system. Under technical direction from the EPAWAM, the Contractor will code bug fixes and/or program enhancements. The updated

BASINS component will be tested internally by the Contractor, and then sent to the EPA WAM to verify that it fixes the problem. Finally, the Contractor will provide the code update in the form of revised BASINS extensions or other appropriate code delivery package. The Contractor shall also provide a write-up detailing the problems addressed by the program update, and provide instructions to users on how to update their existing program to include the enhancements.

Whenever BASINS is updated, the Contractor shall conduct internal testing before sending to EPA for further testing. The Contractor shall provide EPA with a report that documents the Contractor's quality assurance tests and activities conducted for the development of the enhancements.

Task 5.1: Develop a User Interface to Identify Intermediate Delineation Locations

In efforts that are currently underway, the SDMProjectBuilder is being modified to ensure that user-specified intermediate locations (e.g., gaging stations, sampling points, etc.) are captured in the automated watershed delineation feature, such that these locations coincide with a subwatershed boundary. The current process of identifying intermediate locations is somewhat cumbersome. This effort shall provide a user interface, consistent with the SDMProjectBuilder, which allows the user to 1) more easily identify these intermediate locations.

Deliverables:

1. Provide a software user interface that 1) more easily identifies intermediate watershed locations during the delineation process.
2. Provide an example case, associated with the Manitowoc Basin or a part of it (e.g., HUC-12), which demonstrates the functionality.
3. Document the software development following QAPP procedures in the form of a memorandum.

Task 5.2: Modify Existing Linkages of HSPF within FRAMES

HSPF had been registered in FRAMES using pre- and post-wrappers. These wrappers were consistent with the input and output used in the Albemarle-Pamlico Estuary System Assessment (APES) for nutrient and mercury assessments using daily time steps on headwater HUC-12s only (Johnston et al., 2011). These wrappers are not fully consistent with our modeling needs, as they do not consider user-defined time steps; linkages to source-term, instream hydrodynamic, and risk assessment models; or microbial or chemical stressors, other than mercury and nutrients. The ability to have the potential to communicate with models that provide these functionalities is predicated on encoding linkages to FRAMES-based dictionaries (Whelan et al., 2014a). Using versions of HSPF and BASINS consistent with the SDMProjectBuilder (Whelan et al., 2014b), this effort shall institute modifications to the HSPF wrappers currently registered in FRAMES, so HSPF could have the ability to communicate within FRAMES with other models. Specifically, the HSPF

- pre-wrapper shall register the following FRAMES-based dictionaries: SDMQMRA and SourceBC, where appropriate, using the FRAMES API, and populate the UCI and other files, where appropriate, with these data.

- post-wrapper shall register the following FRAMES-based dictionaries: WatershedOutMSTR, RiverHydro, and InstreamMicrobeDen, where appropriate, using the FRAMES API.

The FRAMES-based dictionaries are attached with the accompanying Excel spreadsheet.

With modifications to the HSPF wrappers to communicate with the FRAMES API (through these new dictionaries), HSPF would have the ability to communicate with modules that also use these dictionaries. Current modules include that use also use these dictionaries include the Microbial Source Module (EPA, 2013b, 2013c), HEC-RAS (Aqua Terra and Riverside Technology, 2012), WASP (Johnston et al., 2011), and MRA-IT (Pelton, 2009). This assumes EPA has properly registered these modules in FRAMES. Assuming that EPA has properly registered these modules with FRAMES using these dictionaries, this effort will support and facilitate the communication within FRAMES between

- HSPF and Microbial Source Module
- HSPF and WASP
- HSPF, HEC-RAS, and WASP
- HSPF and MRA-IT

Deliverable:

1. Update HSPF pre- and post-wrapper software following QAPP procedures.
2. Provide an example case that demonstrates the use of these dictionaries.
3. Document modifications to the HSPF pre- and post-wrappers following QAPP procedures in the form of a memorandum.

Task 5.3: Modify the SDMProjectBuilder

Two types of modifications shall be made to the SDMProjectBuilder. The first allows the user to open (i.e., retrieve), save, or begin a new session. The second supports EPA in helping to ensure that the data developed using the SDMProjectBuilder populate the correct input files that support the execution of SWAT.

1. Under the File tab in the SDMProjectBuilder, Save, Save As, New, and Open shall execute as designed. Save allows the user to save the current work using the existing file name. Save As allows the user to save the current work under a new file name. New clears the existing page and allows the user to start a new session. Open allows the user to open an existing case.

2. Under the original design of the precursor software to SDMProjectBuilder, the input files associated with SWAT-2005 were fully populated for nutrients and mercury as part of the APES assessment (Johnston et al., 2011). Based on the work captured in Johnston et al., (2011), SDMProjectBuilder was designed and built to also work with and meet the input data needs for HSPF. To ensure that SWAT-2005 can still be used within this modeling paradigm, this effort supports EPA in ensuring that the SDMProjectBuilder still automates the data-collection process for that version of SWAT-2005 used in the Johnston et al. (2011) study.

Deliverables:

1. Deliver an updated SDMProjectBuilder software interface that allows the Save, Save As, New, and Open options to execute as designed, following QAPP procedures.
2. Deliver an updated SDMProjectBuilder software interface, following QAPP procedures.
3. Provide an example case that demonstrates the application of the modifications to the SDMProjectBuilder, following QAPP procedures.
4. Document modifications to an updated SDMProjectBuilder software interface, following QAPP procedures, in the form of a memorandum.

Task 5.4: Develop HSPF and SWAT data publishing utilities

Develop utilities to publish HSPF and SWAT metadata, input and output data to WEDO. Background: EPA is in the process of developing a web-based repository of watershed modeling data. The repository would be used by watershed modelers to publish their data related to modeling studies. Watershed models like HSPF and SWAT would publish input, output, and metadata to WEDO. WEDO web site would include a relational database to house model inputs, outputs, metadata. WEDO would also have web services to facilitate publishing data from watershed models to the relational database. WEDO would publish summarized data to EnviroAtlas. There would be web forms for the user to discover, understand, evaluate, and download data from WEDO.

Task 5.4 has the following two sub-tasks:

Develop a utility to publish HSPF inputs and selected outputs to WEDO database. The development includes the following:
1. Provide a GUI to the user to select data to be published
2. The GUI lets the user enter metadata such as Publisher (user) name, organization, HSPF model run description, calibration details, dates runs were made, brief input data description, model version, etc.
3. All HSPF inputs are zipped into a file for upload to WEDO.
4. The utility displays all stream IDs to the user and allows the user to select streams whose outputs would be published.
5. The utility then uploads the zipped inputs file and output data for user selected streams to WEDO site.
6. A success of failure message is displayed to the user.

Develop a utility to publish SWAT inputs and selected outputs to WEDO database. The development includes the following:
1. Provide a GUI to the user to select data to be published
2. The GUI lets the user enter metadata such as Publisher (user) name, organization, HSPF model run description, calibration details, dates runs were made, brief input data description, model version, etc.
3. All SWAT inputs are zipped into a file for upload to WEDO.
4. The utility displays all stream IDs to the user and allows the user to select streams whose outputs would be published.

5. The utility then uploads the zipped inputs file and output data for user selected streams to WEDO site.
6. A success of failure message is displayed to the user.

Deliverables:

1. A stand-alone software utility that successfully generates the following for HSPF
   (1) a zipped file of inputs for an HSPF run
   (2) a set of files containing time series of flow and nutrients outputs for the user selected streams. Streams must have NHD Plus stream IDs along with HSPF assigned stream IDs.
   (3) A file containing user entered metadata
2. A stand-alone software utility that successfully generates the following for SWAT
   (4) a zipped file of inputs for an HSPF run
   (5) a set of files containing time series of flow and nutrients outputs for the user selected streams. Streams must have NHD Plus stream IDs along with HSPF assigned stream IDs.
   (6) A file containing user entered metadata

References

Aqua Terra and Riverside Technology, 2012. Linking HEC-RAS with FRAMES: Application Requirements, Design, Specifications, and Verification. EPA Contract #EP-11-D000486, U.S. Environmental Protection Agency, Ecosystems Research Division, Athens, GA.

EPA (U.S. Environmental Protection Agency), 2013b. BASINS/HSPF Training, Exercise 10 – Bacterial and temperature modeling. http://water.epa.gov/scitech/datait/models/basins/upload/Exercise-10-Bacteria-and-Temperature.pdf (last accessed 23.02.14.).

EPA (U.S. Environmental Protection Agency), 2013c. BASINS user information and guidance, BASINS tutorials and training. http://water.epa.gov/scitech/datait/models/basins/userinfo.cfm#tutorials (last accessed 23.02.14.).

Johnston, J.M., McGarvey, D.J., Barber, M.C., Laniak, G.F., Babendreier, J.E., Parmar, R., Wolfe, K., Kraemer, S.R., Cyterski, M., Knightes, C., Rashleigh, B., Suarez, L., Ambrose, R., 2011. An integrated modeling framework for performing environmental assessments: application to ecosystem services in the Albemarle-Pamlico basins (NC and VA, USA). Ecol. Modell. 222 (14), 2471e2484.

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TASK 6: Create and /or Edit User Documentation

The Contractor will update documentation of the BASINS system through the continued use of a hypertext document in the form of a compiled HTML help file. New documentation will cover any enhancements made to the system through this work assignment.

In some cases, the EPA WAM or Contractor will notice that a particular technical support question is routinely repeated. When this situation occurs, at the request of the EPA WAM through technical direction, the Contractor will create a concise written summary of the problem and solution.

In response to technical direction from the EPA WAM, the Contractor shall create technical documents for user requests requiring more in-depth responses. It is anticipated that these documents will be approximately five pages in length (no more than ten pages), contain tables, figures and/or multi-media functions. Examples of technical notes can be found on the BASINS web pages. Instructions might cover issues within the entire spectrum of BASINS use, such as model setup, calibration, process representation, report template development, review of models, and simulation of unusual or unique hydrologic and/or water quality conditions.

TASK 7: Support for BASINS web page

As enhancements are made to BASINS, the Contractor will need to review the web page to make sure that the changes are accurately reflected and that the software is provided in the right format.

DELIVERABLE SCHEDULE

Task	Deliverable	Date
Task 1	Schedule kick-off meeting	Upon contract start date
Task 1	Hold kick-off meeting	Within 5 days of start date
Task 2	Draft QAPP	Within 10 days
Task 2	Final QAPP	Within 5 days from receipt of EPA comments from the EPA WAM
Task 3	Work Plan	Within 30 days of receipt of the WA
Task 3	Progress Reports	Monthly throughout the performance period
Task 4	Once technical direction is received and services are rendered, the Contractor shall provide an email describing the issue, support provided and results	Within 5 days after conclusion of each technical direction

Task 5	Develop and test code for bug fixes or enhancements	Within 30 days from technical direction
Task 5	Provide the code update in the form of revised BASINS extensions or other appropriate code delivery package	Within 15 days from technical direction
Task 5	Write-up detailing the problems addressed by the program update, and provide instructions to users on how to update their existing program to include the enhancements	Within 10 days from technical direction
Task 5	QA report(s)	Within 3 days of internal testing
Task 5	Release enhancements into live environment	Within 15 days from technical direction
Task 6	Draft version of user documentation	Within 30 days from technical direction
Task 6	Final version of user documentation	Within 15 days from EPA WAM review
Task 7	Email with comments following review of web pages	Within 10 days from technical direction

OTHER REQUIREMENTS

Travel - EPA anticipates the need for non-local travel by the contractor employees and/or subcontractors to support the scope of this work assignment.

Confidential Business Information - The contractor shall, at all times, adhere to Confidential Business Information (CBI) procedures when handling industry information. The contractor shall manage all reports, documents, and other materials and all draft documents developed under this work assignment in accordance with the procedures set forth in the Office of Science and Technology Confidential Business Information (OST-CBI) Application Security Plan (June 10, 2003), or its successor approved plans.

Meetings - To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties or visiting field sites.

Event Expenses Not to Exceed $20,000 - No single event under this Work Assignment is anticipated to exceed $20,000. The Contractor shall immediately notify the EPA Contracting Officer, PO and WAM of any anticipated event involving support for a meeting, conference, workshop, symposium, retreat, seminar or training that may potentially incur $20,000 or more in cost during performance. Conference expenses are all direct and indirect costs paid by the government and include any associated authorized travel and per diem expenses, room charges for official business, audiovisual use, light refreshments, registration fees, ground transportation and other expenses as defined by the Federal Travel Regulations. All outlays for conference preparation should be included, but the federal employee time for conference preparation should not be included. After notifying EPA of the potential to reach this threshold, the Contractor shall not proceed with the task(s) until authorized to do so by the Contracting Officer.

Limitation of Contractor Activities - The contractor shall submit drafts of all deliverables to the Work Assignment Manager (WAM) for review prior to submission of the final product. The contractor shall incorporate all WAM comments into all final deliverables, unless otherwise agreed upon by the WAM. The contractor shall adhere to all applicable EPA management control procedures as implemented by the Contracting Officer (CO), Project Officer (PO), and WAM.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 2-52

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-12-021	09/26/2012 To 09/25/2015 Base Option Period Number 2	BASINS Support and Maintenance

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 07/21/2015 To 09/25/2015

Comments:
The purpose of this Amendment 1 is to exchange the PWS for this Work Assignment.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

SFO (*Max 2*) ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 09/26/2012 To 09/25/2015 — Cost/Fee: — LOE:

This Action:

Total:

Work Plan / Cost Estimate Approvals

Contractor WP Dated: — Cost/Fee: — LOE:

Cumulative Approved: — Cost/Fee: — LOE:

Work Assignment Manager Name: Rajbir Parmar (Signature) (Date)	Branch/Mail Code:	
	Phone Number: 706-355-8306	
	FAX Number:	
Project Officer Name: Meghan Hessenauer (Signature) (Date)	Branch/Mail Code:	
	Phone Number: 202-566-1040	
	FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	
	FAX Number:	
Contracting Official Name: Brad Heath (Signature) (Date)	Branch/Mail Code:	
	Phone Number: 513-487-2352	
	FAX Number:	

PERFORMANCE WORK STATEMENT
CONTRACT EP-C-12-021
WORK ASSIGNMENT 2-52
AMENDMENT 1

TITLE: BASINS Support and Maintenance

WORK ASSIGNMENT MANAGER (WAM):

Rajbir Parmar
Phone: 706-355-8306
parmar.rajbir@epa.gov

PERIOD OF PERFORMANCE: July 21, 2015 through September 25, 2015

BACKGROUND:

BASINS (Better Assessment Science Integrating point and Nonpoint Sources) is a multipurpose environmental analysis system designed for regional, state, and local agencies that perform watershed and water quality-based studies. This system makes it possible to quickly assess large amounts of point and non-point source data in a format that is easy to use and understand. Installed on a personal computer, BASINS allows the user to assess water quality at selected stream sites or throughout an entire watershed. This invaluable tool integrates environmental data, analytical tools, and modeling programs to support cost-effective approaches to watershed management and environmental protection, including the development of Total Maximum Daily Loads (TMDLs).

BASINS can be accessed at: http://water.epa.gov/scitech/datait/models/basins/index.cfm. Documentation of where BASINS data is hosted will be provided upon request.

PURPOSE:

The purpose of this work assignment is to:

- Provide support to user community, primarily by responding to inquiries received through inbox.
- Maintain BASINS current by fixing program bugs and/or developing program enhancements to facilitate use.

SPECIALIZED SKILLS:

The Contractor shall provide experts who are experienced in using BASINS and have a thorough understanding of its operation and the models contained within the system. In particular expertise shall be available in the following:

Models: HSPD, DFLOW, SWAT, PLOAD, WASP, SWMM, and GWLF – expertise on model setup, calibration, data sources, and model output interpretation.

GIS: ArcView, ArcGIS, and MapWindow software; GIS data; metadata and incorporation of user-supplied data.

Systems: Using BASINS and its components under Windows XP, and Windows 7, and Windows Vista operating systems.

Utilities: WDM Utility, HSPFParm, HSPF Expert System, WinHSPF, Bacteria spreadsheet, GenScn, and PEST driver.

Programming: Object-oriented programming such as Visual Basic, C+, C#, .NET, Active X, FORTRAN, and other languages.

The Contractor must also have experience working to publish updates to a system in EPA's servers and web environment.

TASKS

TASK 1 – Kick-off Meeting

Prior to beginning work on this Work Assignment, the EPA Work Assignment Manager (WAM) shall schedule a "Kick Off" meeting with the Contractor and quality assurance officer. The agenda for this meeting will include the following items: (a) overview of the goals of the Work Assignment; (b) review and discussion of individual tasks; (c) roles and responsibilities of the WAM, and of the Contractor; (c) any questions or concerns regarding QA/QC actions; (d) review the schedule of milestones and expectations; and (e) other items as requested either by the WAM or the Contractor.

TASK 2: Quality Assurance / Quality Control

Quality Assurance (QA) is an important component of EPA's work to assure that minimum quality standards are attained. The contractor shall adhere to the Quality Management Plan (QMP) customized for this contract. The Contractor shall review and revise the existing Quality Assurance Project Plan (QAPP) to reflect the tasks in this Work Assignment and Quality Management Procedures corresponding to this contract. Note that the existing QAPP for latest round of BASINS enhancements will be provided as a starting point. The Contractor shall notify the EPA WAM at any time during the Work Assignment if changes to the QAPP are warranted (e.g., due to organizational changes, revised technical approaches or other unforeseen circumstance).

If, during the Period of Performance of this Work Assignment, the EPA WAM provides technical direction that revisions to the QAPP are determined to be necessary, the Contractor shall submit a revised QAPP, including the revision summary.

When preparing this "draft" revised version of the QAPP, the Contractor shall ensure that it is written in an active voice and shall include a "version history page" that summarizes changes made. The Contractor also shall provide the EPA WAM with copies of any modified SOPs or checklists.

The contractor shall provide a draft QAPP to the EPA WAM within 10 business days. The EPA WAM will review the draft QAPP and provide the Contractor with written approval or comments. The Contractor shall provide a final QAPP that responds to EPA's written comments within 5 business days.

TASK 3: Develop Work Plan and Manage Project

The Contractor shall prepare a Work Plan within 10 days of receipt of this work assignment for the tasks outlined here. The Contractor shall also provide management and administrative support related to this work assignment, including the following:

- Perform financial oversight and prepare monthly progress reports to the EPA WAM. These progress reports shall include a detailed breakdown of costs and hours, a progress report on each task, problems encountered, including with quality assurance/quality control, and percent completion of the work. The monthly progress reports shall include a summary of all QA activities performed during the reporting period.
- Track progress toward completion of tasks against costs and LOE expended.
- Perform quality assurance checks of products produced in these tasks.
- Assist in resolving internal problems associated with completion of tasks or costs.

Should an issue arise, the Contractor shall contact the EPA WAM to inform of the problem and provide options for resolution. The Contractor shall provide follow up by email or phone until the issue is resolved.

TASK 4: Provide Technical Support for BASINS

On occasion, requests on how to use BASINS for a particular application require a more in-depth response than that anticipated for routine technical support questions. In response to technical direction from the EPA WAM, the Contractor shall provide communication with step-by-step instructions to BASINS users in utilizing a particular function of the BASINS system.

In providing support, the Contractor shall adhere to the following procedures:

- Requests for BASINS support will be issued via written technical direction from the EPA WAM, where the EPA WAM has decided the request requires the Contractor's efforts. Requests for support may arise from the BASINS Help email box, the BASINS listserve, or questions addressed individually to EPA staff.
- Contractor support will be supplied via phone, electronic mail, conference calls, or video calls. Contractor responses to questions posted on the BASINS Help email will send a copy back to the appropriate Help email for future reference. Responses by email will copy the EPA WAM.
- Requests for enhancement to the BASINS code or creation of custom BASINS data sets will be sent to the EPA WAM for approval prior to initiation of any such work.
- The Contractor will inform the EPA WAM of the nature of the technical support provided, as well as the result.

TASK 5: Perform Model and Tool Updates, Enhancements, and Bug Fixes

During the course of using the BASINS system, users will likely report program bugs and/or program enhancements that would facilitate use of the system. Under technical direction from the EPAWAM, the Contractor will code bug fixes and/or program enhancements. The updated BASINS component will be tested internally by the Contractor, and then sent to the EPA WAM to verify that it fixes the problem. Finally, the Contractor will provide the code update in the form of revised BASINS extensions or other appropriate code delivery package. The Contractor shall also provide a write-up detailing the problems addressed by the program update, and provide instructions to users on how to update their existing program to include the enhancements.

Whenever BASINS is updated, the Contractor shall conduct internal testing before sending to EPA for further testing. The Contractor shall provide EPA with a report that documents the Contractor's quality assurance tests and activities conducted for the development of the enhancements.

Task 5.1: Robust Version of the BASINS-related Quantitative Risk Assessment Workflow

The SDMProjectBuilder is a software package built from the BASINS infrastructure using dotSpatial, which communicates with and produces HSPF and SWAT support and MapWindow files for utilization with BASINS. This BASINS-related component, helps to automate the conceptual site model, data collection, and model support for rapid, easy, and cost-effective assessments. The objective is to solidify a robust modeling workflow that includes the following components

- SDMProjectBuilder/D4EM
- Microbial Source Module (MSM), including files containing input parameters (e.g., Application, BuiltUpUrbanizedRate, Density, GrazingDays, MicrobialAnimalProductionRates, MicrobialWildlifelProductionRates)
- Source Location csv/txt/shp files, which identify locations associated with point chemical or microbial sources (e.g., POTWs), septics, animals, and intermediate locations, including attributes
- Microbial Risk Assessment Interface Tool (MRA-IT)

The current system operates well, although some additional refinements are required. Delivery of a robust system that interacts relatively seamlessly with the current architecture of BASINS, HSPF, and SWAT is required. Activities associated with this task are listed as follows:

1. When hourly simulations are chosen, there are instances where no hourly simulation results exist. For example, the Broad River analysis only provides daily and monthly runoff and flow information. When Manitowoc Basin is run, though, hourly results do appear. Ensure that when a time increment is specified for the output, such as hourly, output data are available in this time increment.

2. Using Save on the Microbes tab keeps one of the interface text boxes (e.g., 3 of 1,000) on the working screen. If this is appropriate, then an explanation is required; if not, then a correction is required.
3. Under the Edit Special Actions Block, if one clicks on Distributes or other tabs, an error occurs. This error needs to be confirmed and corrected.
4. If all re-projection questions are YES, of which there are three, then it is not necessary to show these screen boxes. If all re-projection questions are all YES, then design the interface, so the re-projections do not appear on the screen.
5. Under the Point Sources Editor, the point sources are not listed. When point sources are defined, ensure that the point sources and attributes appear in the Point Sources Editor list.
6. After saving and exiting the SDMProjectBuilder, when one re-opens the file, an error occurs, if map layers are adjusted. This error needs to be corrected.
7. Data collection associated with the watershed attributes are independent of the MET station information. As an alternative, when the map layers for a watershed are collected for the first time, the files will be stored such that the user could execute the watershed modeling with either the monitoring or NLDAS MET stations.
8. The initial HSPF assumption that determines base flow consistently overestimates simulated base flows on the watershed. This assumption needs to be revisited such that HSPF produces lower base flows that are more consistent with monitored data. The new default values will be tested through the example test cases.
9. The file generated by SARA Time Series Tool appears to use a UTF-16 format, and MRA-IT appears to expect a UTF-8 format, so the SARA Time Series Utility tool needs to provide an option for both, so the correct txt file is generated for MRA-IT consumption.
10. Currently, chemical applications are assumed to be equally applied to all "agricultural" pervious areas in the watershed at a unit loading rate, which represents a placeholder for setting up the proper sections associated with the UCI file. An illustrative example will be developed to demonstrate to the user how a set of different time series application rates can be captured and applied to a subset of agricultural pervious areas associated with a subset of subwatersheds, using the Special Actions Block.
11. Currently, point sources are assumed to be annual averages, which represent a place holder for setting up the proper sections associated with the UCI file. Point source inputs will need to accommodate the actual time series of flows and contaminant loadings, where appropriate. A time series can be imported to replace the existing ones. An illustrative example will be developed to demonstrate to the user can import and replace a point-source time series using the File:Opendata and Read Data with Script as a file type. The imported time series dataset will be in a txt or csv format.
12. EPA has made modifications to the SDMProjectBuilder to correct problems and to extend functionality. The contractor shall integrate these efforts into the SDMProjectBuilder, where appropriate. This effort shall also verify and update, where mutually agreeable, the following:
    a. In the SDMPB, under huc12, there are multiple colored symbols that designate different kinds of HUC12s by "?, N, X, and Y." In addition, none of the HUC-12s are outlined on the map display. The polygons should be automatically outlined

(e.g., using black as the color with a width of 1), and the titles should be more descriptive. The program might be looking in the wrong folders for information, hence, going to default information. EPA has corrected this problem

b. In September 2014, software was developed that recorded animal locations, point sources, chemical applications to all agricultural areas, and intermediate points. EPA developed a more universal tool that registers the spatial locations of sources of contaminants, including attributes. This activity is to independently test and update the software, where appropriate, to ensure that the MSM source-term tool works as designed. These sources include
    i. Lat-Long locations of farms with numbers of animals as attributes (AnimalLL)
    ii. Lat-Long Locations of septics (SepticLL); there is an accompanying Septic data (SepticData) file, containing information on total number of people served by septics, septic failure rate, typical microbial density, and septic overcharge rate. Septics need to be registered, and the location should be a function of subwatershed, so a Lat-Long should be associated with each location.
    iii. Lat-Long locations of point sources (e.g., POTWs) (PointSourceLL) with a point source ID as an attribute; there is an accompanying file (PointSourceData) that contains annual average flow and loading rates for a microbe or chemical by point source ID
    iv. Lat-Long locations of intermediate points where it is desirable to have co-located subwatershed delineations (IntermediatePointLL). Currently a shape file is required to register intermediate watershed locations, as opposed to a txt or csv file containing Lat-Long. Allow the user to provide either a csv file or shape file to define the Lat-Long of intermediate points.

c. Modifications should address some of the following problems, although these need to be confirmed, and if not corrected, they need to be corrected.
    i. There is an error in referencing the AnimalLL file, as changes to that file do not result in any modeling changes, suggesting that the software is pointing to the wrong AnimalLL file folder. All references should initially point to the working folder location.
    ii. There are still issues with adding a farm and ensuring the information is correctly captured. This issue may be related to accessing the correct file in the correct folder.
    iii. When Microbes is not chosen and/or do not exist, animal (AnimalLL.txt) and point (PointSourceLL.txt) source files are still required. If the microbe or chemical option is not chosen, then the AnimalLL and/or PointSourceLL files should not be required by the user.

13. Update the September 2014 tutorials to include modifications associated with items addressed above, where relevant, and where explanatory notes specifically reference a point on the screen capture but where the that point is not highlighted.

It should be noted that the csv file format is preferred, followed by txt.

Deliverables:

1. With a suite of tutorials, document functionality noted in this task. The test cases listed under Task 2 can be used in the tutorials, where applicable. In addition, the September 2014 tutorials can be used as stating points.
2. Provide final mwprj, uci, dspx files. If modifications are made to any file (e.g., including updated time series for point sources), include the original and updated files with documentation that identifies the original and modified files and information on what was changed in the files.
3. At gaging stations, compare time-varying monitored and simulated flow data (Graphical output).
4. Provide time-varying flows and microbial densities at each pour point (graphical output).
5. As much as possible, use graphical documentation of output results to demonstrate successful application of the software.

Task 5.2. Testing the Work Flow at Independent Sites

Four watersheds have been identified for testing of the work flow that demonstrates independent applications of the SDMProjectBuilder, MSM, HSPF, and BASINS work flow, capturing flow and/or microbial fate and transport from within the watershed to the pour point, where applicable. The location of each beach is presented in Figure 1. Manitowoc River, Oak Creek, and Cuyahoga River are not impacted by their city's POTW, but Trail Creek is impacted by a run-of-the-river POTW. Figures 2 through 5 present pictures of the pour point of each watershed. The four sites are as follows:

- Manitowoc River, near Red Arrow Beach, Manitowoc, WI – Lake Michigan: The mouth of the Manitowoc River, Manitowoc, WI, is at 44.09216, -87.657662 (see Figure 2).
- Oak Creek, near Grant Park Beach, South Milwaukee, WI – Lake Michigan: The mouth of Oak Creek is at 42.906430, -87.841196 (see Figure 3).
- Trail Creek, near Washington Park Beach, Michigan City, IN – Lake Michigan: The mouth of Trail Creek, Michigan City, IN, is at 41.726040, -86.909470 (see Figure 4).
- Cuyahoga River, near Edgewater Park, Cleveland, OH – Lake Erie: The mouth of Cuyahoga River, Cleveland, OH, is at 41.503583, -81.711774 (see Figure 5).

As opposed to testing the same functionality on all watersheds, the intent is to divide the testing among the watersheds; Hence, the

- Manitowoc River Basin will focus on testing HUC-12 and pour-point delineations, as well as capturing intermediate points that identify sampling and gaging-station locations, land-based and point-source (e.g., septics) microbial loadings, and flow and microbial fate and transport throughout the entire watershed.
- Oak Creek, Trail Creek, and Cuyahoga River Basins will focus on basin-wide flow and point source releases (flow and microbes) from POTWs.

Specifics of each testing protocol are outlined as follows:

Manitowoc River Basin

Assumptions include Hourly, Snowmelt, an appropriate period of record (e.g., 1990-2000, 2005-2015), and assessments for both NLDAS and BASIN MET Stations. EPA will provide farm locations and animal numbers. Outputs include graphical flow and microbial time series at appropriate locations. In addition, the SARA Time Series Utility Tool will produce both UTF-8 and UTF-16 formats of microbial densities for possible consumption by MRA-IT.

Three levels of assessment are anticipated for the Manitowoc analysis: HUC-12, Chilton Pour Point, Entire Basin. The decision on which tests to associate with which catchment sizes will be left up to the contractor. For example, because HUC-12 and Chilton pour-point assessment runtimes are the shortest, these catchments they may represent a more efficient forum to test various functionalities. These can be used to demonstrate chemical point-source loadings; chemical-land application, modifying the application rate to include a daily time series on a selected subset of subwatersheds; adding and deleting farms; pour point functionality; separate NLDAS and monitored station analyses; etc. Suggested delineations include the following: HUC-12 [5 – 10 subwatersheds (e.g., 3 sq. km minimum area, 3 km minimum stream length)], Chilton Pour Point [10 – 20 subwatersheds (e.g., 3 sq. km minimum area, 3 km minimum stream length)], and Entire Basin [20 – 40 subwatersheds (e.g., 15 sq. km minimum area, 15 km minimum stream length)].

There are situations where the entire watershed would represent a better test case to demonstrate functionality. For example, defining and comparing results at intermediate points would best be handle with the entire basin. Figure 6 presents the sampling locations associated with the Manitowoc River Basin: Manitowoc R station, Branch R station, USGS gage station, and 8th St. station. So, to account for Intermediate Points in the Manitowoc River Basins, use the following locations:

- Gaging Stations
    - USGS gage station (Manitowoc River at Michigan Avenue): 44.106031, -87.71604 (44° 6' 21.712" N, 87° 42' 57.744" W)
    - Gaging Station on Manitowoc River at Chilton: 44.0239768, -88.1173753 (44° 1' 26.3172" N, 88° 7' 2.5494" W)
- Sampling Locations
    - Manitowoc R station (Manitowoc River at Union Road): 44.111724, -87.781094 (44° 6' 42.206" N, 87° 46' 51.938" W)
    - Branch R station (Branch River at Union Road): 44.134725, -87.765328 (44° 8' 5.010" N, 87° 45' 55.181" W)
    - 8th St. station [Manitowoc River at 8th Street (essentially the pour point of the Manitowoc River Basin)]: 44.09216, -87.657662 (44° 5' 31.776" N, 87° 39' 27.583" W)

Oak Creek, Trail Creek, and Cuyahoga River Basins

The purposes of these assessments are 1) to perform an entire watershed assessment, including intermediate points where gaging stations exist and the outfall location for run-of-

the-river POTWs in each watershed; and 2) to include flow and microbial time series input from run-of-the-river POTWs near the pour point in each watershed. The contractor shall collect the flow and microbial time series from each POTW near the pour point of the river basin. No farms or septics will be included.

Deliverables

1. Provide final mwprj, uci, dspx files. If modifications are made to any file (e.g., including updated time series for point sources), include the original and updated files with documentation that identifies the original and modified files and information on what was changed in the files.
2. At gaging stations, compare time-varying monitored and simulated flow data (Graphical output).
3. Provide time-varying flows and microbial densities at each pour point (graphical output).
4. As much as possible, use graphical documentation of output results to demonstrate successful application of the software.

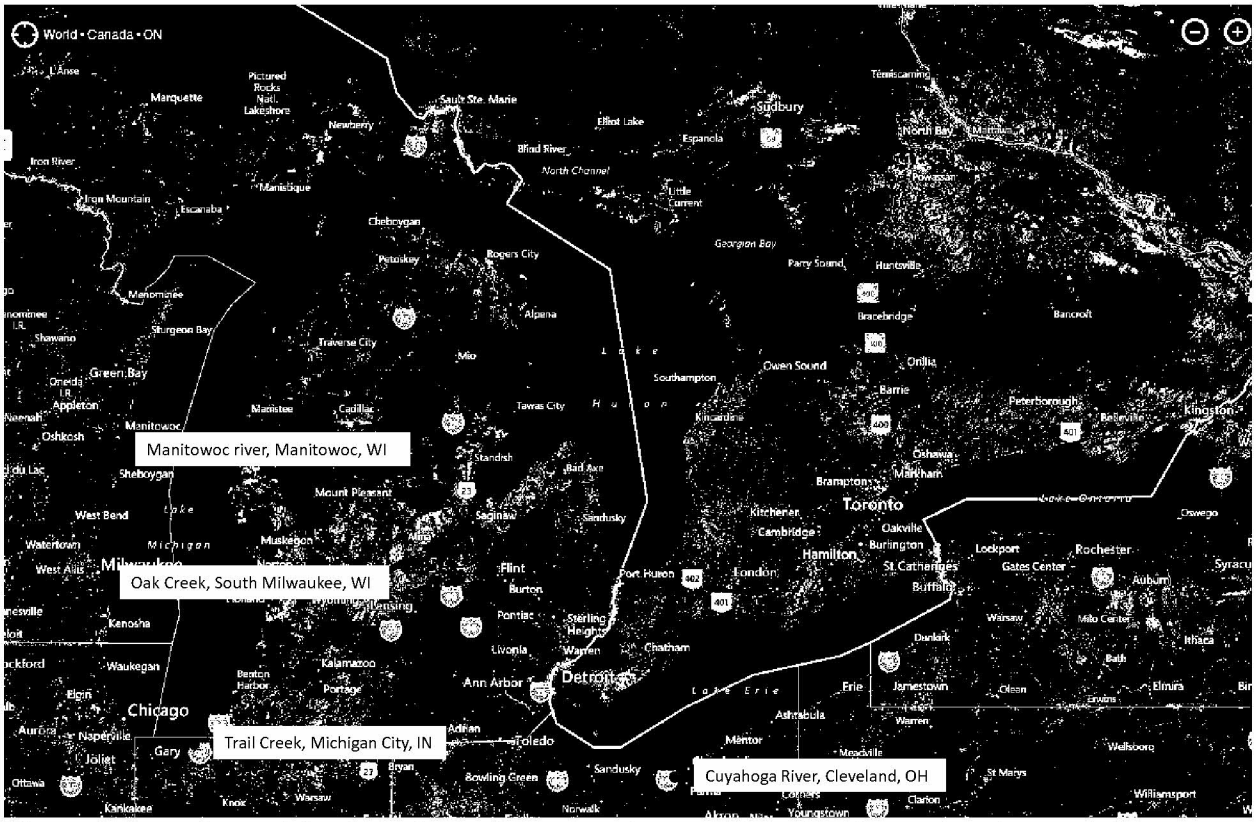

Figure 1. Locations of the four rivers that are under consideration for testing the work flow software: Manitowoc River, Manitowoc, WI (Lake Michigan); Oak Creek, South Milwaukee, WI (Lake Michigan); Trail Creek, Michigan City, IN (Lake Michigan); and Cuyahoga River, Cleveland, OH (Lake Erie)

Figure 2. Manitowoc River: Near Red Arrow Beach, south of the mouth of the river.

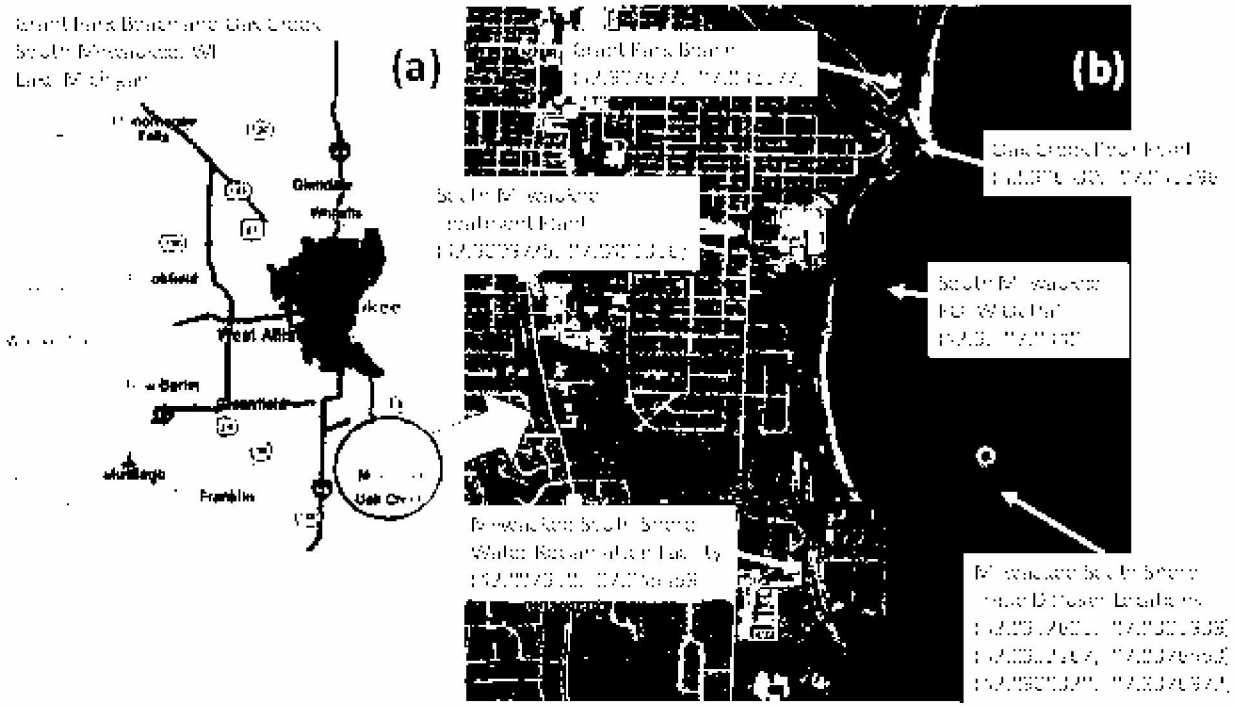

Figure 3. Location of Grant Park Beach and Oak Creek, South Milwaukee, WI: (a) City of Milwaukee (red area) area serviced by the Milwaukee Sanitation District (gray area), and City of South Milwaukee and area serviced by South Milwaukee (white area). (b) Grant Park Beach (42.907677, -87.841177), mouth of Oak Creek (42.906430, -87.841196), South Milwaukee Treatment Plant (42.9009725,-87.8481316) along the western shore of Lake Michigan, South Milwaukee Treatment Plant POTW effluent outfall in Lake Michigan (42.9, -87.8448), Milwaukee South Shore Water Reclamation Facility (42.887918, -87.845459), and Milwaukee South Shore Water Reclamation Facility Triple Diffuser Locations [(42.8912681, -87.8381939), (42.8912167, -87.8376553), and (42.8908328, -87.8376972)].

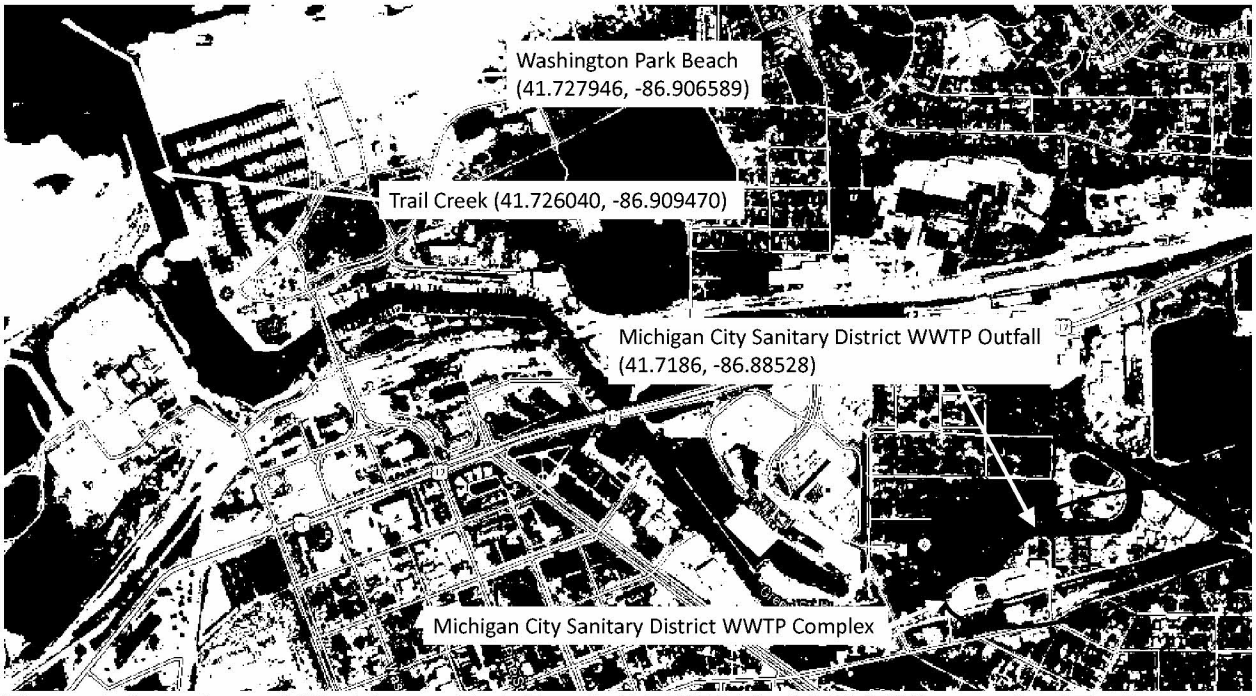

Figure 4. Locations of Washington Park Beach (41.727946, -86.906589), mouth of Trail Creek (41.726040, -86.909470), Michigan City Sanitary WWTP outfall (red dot; 41.7186, -86.88528), and POTW complex (red oval).

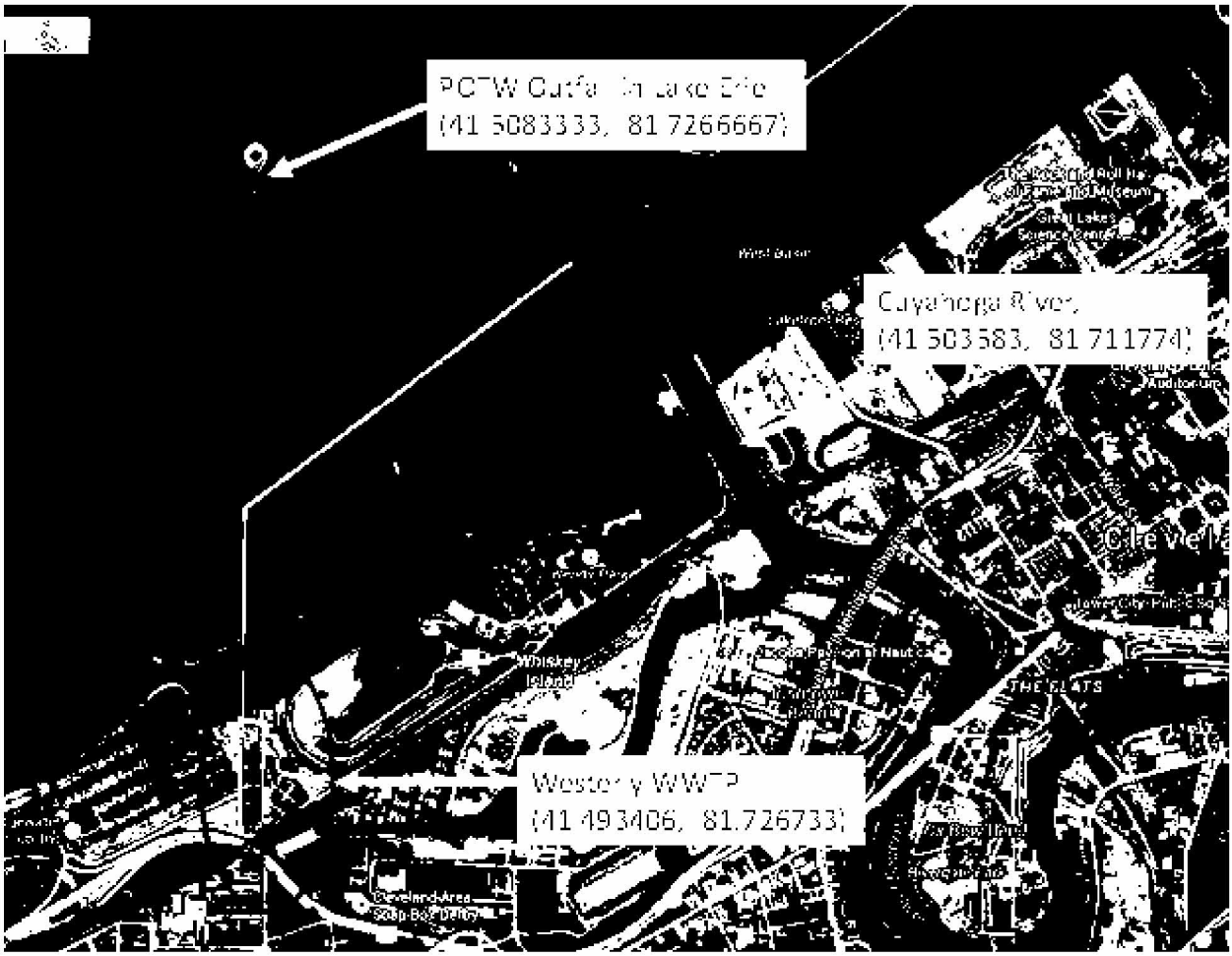

Figure 5. Locations of the mouth of the Cuyahoga River (41.503583, -81.711774), Westerly WWTP (41.493406, -81.726733; red oval), and the POTW outfall in Lake Erie (41.5083333, -81.7266667).

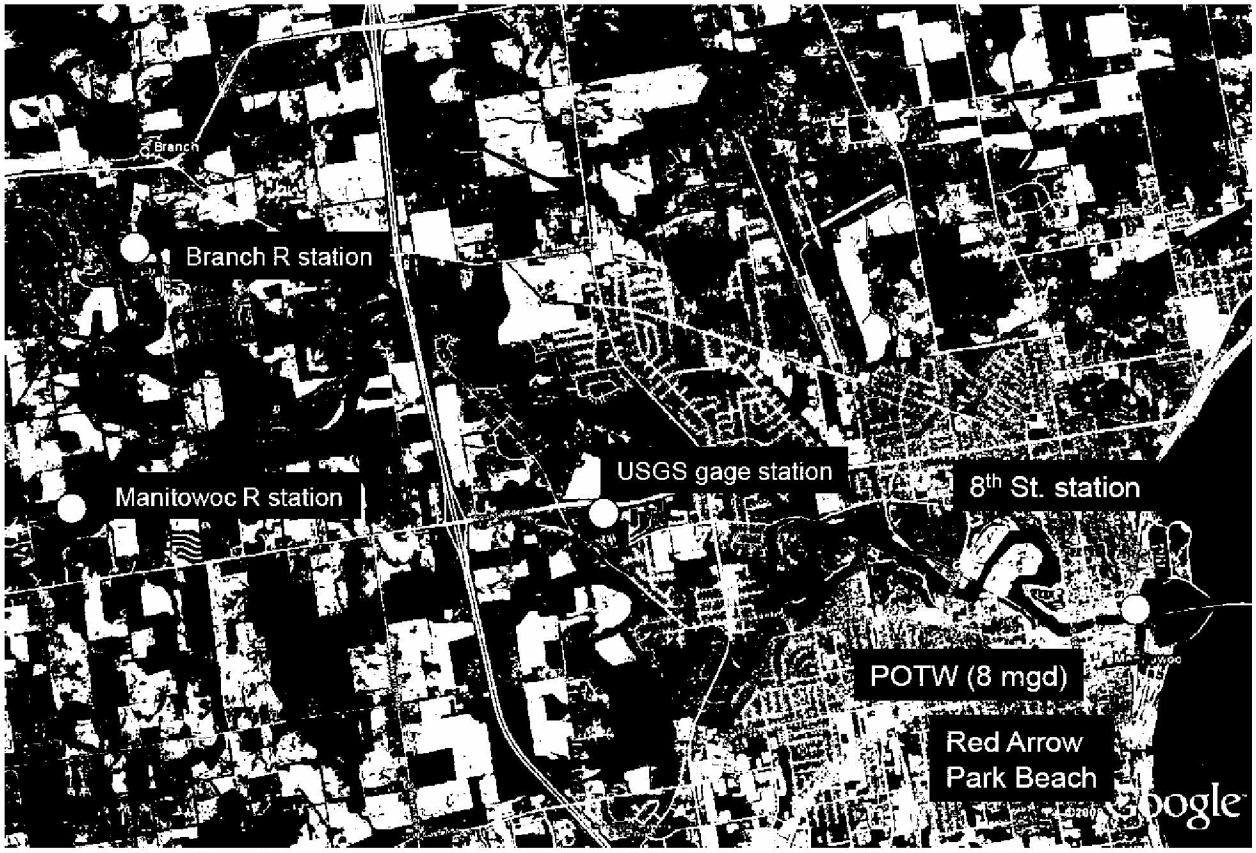

Figure 6. Sampling locations associated with the Manitowoc River Basin: Manitowoc R station, Branch R station, USGS gage station, and 8th St. station.

Task 5.3. Modify the SDMProjectBuilder

Two types of modifications shall be made to the SDMProjectBuilder. The first allows the user to open (i.e., retrieve), save, or begin a new session. The second supports EPA in helping to ensure that the data developed using the SDMProjectBuilder populate the correct input files that support the execution of SWAT.

1. Under the File tab in the SDMProjectBuilder, Save, Save As, New, and Open shall execute as designed. Save allows the user to save the current work using the existing file name. Save As allows the user to save the current work under a new file name. New clears the existing page and allows the user to start a new session. Open allows the user to open an existing case.

2. Under the original design of the precursor software to SDMProjectBuilder, the input files associated with SWAT-2005 were fully populated for nutrients and mercury as part of the APES assessment (Johnston et al., 2011). Based on the work captured in Johnston et al., (2011), SDMProjectBuilder was designed and built to also work with and meet the input data needs for HSPF. To ensure that SWAT-2005 can still be used within this modeling paradigm, this effort supports EPA in ensuring that the SDMProjectBuilder still automates the data-collection process for that version of SWAT-2005 used in the Johnston et al. (2011) study.

Deliverable:

1. Deliver an updated SDMProjectBuilder software interface that allows the Save, Save As, New, and Open options to execute as designed, following QAPP procedures.
2. Deliver an updated SDMProjectBuilder software interface, following QAPP procedures.
3. Provide an example case that demonstrates the application of the modifications to the SDMProjectBuilder, following QAPP procedures.
4. Document modifications to an updated SDMProjectBuilder software interface, following QAPP procedures, in the form of a memorandum.

Task 5.4: Develop HSPF and SWAT data publishing utilities

Develop utilities to publish HSPF and SWAT metadata, input and output data to WEDO. Background: EPA is in the process of developing a web-based repository of watershed modeling data. The repository would be used by watershed modelers to publish their data related to modeling studies. Watershed models like HSPF and SWAT would publish input, output, and metadata to WEDO. WEDO web site would include a relational database to house model inputs, outputs, metadata. WEDO would also have web services to facilitate publishing data from watershed models to the relational database. WEDO would publish summarized data to EnviroAtlas. There would be web forms for the user to discover, understand, evaluate, and download data from WEDO.

Task 5.4 has the following two sub-tasks:

Develop a utility to publish HSPF inputs and selected outputs to WEDO database. The development includes the following:
1. Provide a GUI to the user to select data to be published
2. The GUI lets the user enter metadata such as Publisher (user) name, organization, HSPF model run description, calibration details, dates runs were made, brief input data description, model version, etc.
3. All HSPF inputs are zipped into a file for upload to WEDO.
4. The utility displays all stream IDs to the user and allows the user to select streams whose outputs would be published.
5. The utility then uploads the zipped inputs file and output data for user selected streams to WEDO site.
6. A success of failure message is displayed to the user.

Develop a utility to publish SWAT inputs and selected outputs to WEDO database. The development includes the following:
1. Provide a GUI to the user to select data to be published
2. The GUI lets the user enter metadata such as Publisher (user) name, organization, HSPF model run description, calibration details, dates runs were made, brief input data description, model version, etc.

3. All SWAT inputs are zipped into a file for upload to WEDO.
4. The utility displays all stream IDs to the user and allows the user to select streams whose outputs would be published.
5. The utility then uploads the zipped inputs file and output data for user selected streams to WEDO site.
6. A success of failure message is displayed to the user.

Deliverables:

1. A stand-alone software utility that successfully generates the following for HSPF
   (1) a zipped file of inputs for an HSPF run
   (2) a set of files containing time series of flow and nutrients outputs for the user selected streams. Streams must have NHD Plus stream IDs along with HSPF assigned stream IDs.
   (3) A file containing user entered metadata
2. A stand-alone software utility that successfully generates the following for SWAT
   (4) a zipped file of inputs for an HSPF run
   (5) a set of files containing time series of flow and nutrients outputs for the user selected streams. Streams must have NHD Plus stream IDs along with HSPF assigned stream IDs.
   (6) A file containing user entered metadata

References

Aqua Terra and Riverside Technology, 2012. Linking HEC-RAS with FRAMES: Application Requirements, Design, Specifications, and Verification. EPA Contract #EP-11-D000486, U.S. Environmental Protection Agency, Ecosystems Research Division, Athens, GA.

EPA (U.S. Environmental Protection Agency), 2013b. BASINS/HSPF Training, Exercise 10 – Bacterial and temperature modeling. http://water.epa.gov/scitech/datait/models/basins/upload/Exercise-10-Bacteria-and-Temperature.pdf (last accessed 23.02.14.).

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Pelton, M.A., 2009. Application Requirements, Design, and Specifications for the Integration of MRA-IT in FRAMES. PNWD-4122. Pacific Northwest Division, Battelle Memorial Institute, Richland, WA.

Whelan, G., K. Kim, M.A. Pelton, K.J. Castleton, G.F. Laniak, K. Wolf, R. Parmar, M. Galvin, and J. Babindreier. 2014a. Design of a Component-based Integrated Environmental Modeling Framework. Environ Modell Softw, 55:1-24.

Whelan, G., K. Kim, R. Parmar, K. Wolfe, M. Galvin, P. Duda, M. Gray, M. Molina, R. Zepp, Y. Pachepsky, J. Ravenscroft, L. Prieto, B. Kitchens. 2014b. Using IEM to Automate a Process-based QMRA. In: Ames, D.P., Quinn, N.W.T., Rizzoli, A.E. (Eds.), Proceedings of the 7th International Congress on Environmental Modelling and Software, June 15-19, San Diego, California, USA. ISBN: 978-88-9035-744-2.

TASK 6: Create and /or Edit User Documentation

The Contractor will update documentation of the BASINS system through the continued use of a hypertext document in the form of a compiled HTML help file. New documentation will cover any enhancements made to the system through this work assignment.

In some cases, the EPA WAM or Contractor will notice that a particular technical support question is routinely repeated. When this situation occurs, at the request of the EPA WAM through technical direction, the Contractor will create a concise written summary of the problem and solution.

In response to technical direction from the EPA WAM, the Contractor shall create technical documents for user requests requiring more in-depth responses. It is anticipated that these documents will be approximately five pages in length (no more than ten pages), contain tables, figures and/or multi-media functions. Examples of technical notes can be found on the BASINS web pages. Instructions might cover issues within the entire spectrum of BASINS use, such as model setup, calibration, process representation, report template development, review of models, and simulation of unusual or unique hydrologic and/or water quality conditions.

TASK 7: Support for BASINS web page

As enhancements are made to BASINS, the Contractor will need to review the web page to make sure that the changes are accurately reflected and that the software is provided in the right format.

A. DELIVERABLE SCHEDULE

Task	Deliverable	Date
Task 1	Schedule kick-off meeting	Upon contract start date
Task 1	Hold kick-off meeting	Within 5 days of start date
Task 2	Draft QAPP	Within 10 days
Task 2	Final QAPP	Within 5 days from receipt of EPA comments from the EPA WAM
Task 3	Draft Work Plan	Within 10 days of receipt of the WA
Task 3	Final Work Plan	Within 5 days from EPA WAM review
Task 3	Progress Reports	Monthly throughout the performance period
Task 4	Once technical direction is received and services are rendered, the Contractor shall provide an email describing the issue, support provided and results	Within 5 days after conclusion of each technical direction
Task 5	Develop and test code for bug fixes or enhancements	Within 30 days from technical direction
Task 5	Provide the code update in the form of revised BASINS extensions or other appropriate code delivery package	Within 15 days from technical direction
Task 5	Write-up detailing the problems addressed by the program update, and provide instructions to users on how to update their existing program to include the enhancements	Within 10 days from technical direction
Task 5	QA report(s)	Within 3 days of internal testing
Task 5	Release enhancements into live environment	Within 15 days from technical direction
Task 6	Draft version of user documentation	Within 30 days from technical direction
Task 6	Final version of user documentation	Within 15 days from EPA WAM review
Task 7	Email with comments following review of web pages	Within 10 days from technical direction

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 2-52

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-12-021	09/26/2012 To 09/25/2016 Base Option Period Number 2	BASINS Support and Maintenance

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☒ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 07/21/2015 To 09/25/2015

Comments:
This Work Plan Approval incorporates Amendment 1.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/26/2012 To 09/25/2016	$0.00	0
This Action:	$79,996.00	542
Total:	$79,996.00	542

Work Plan / Cost Estimate Approvals

	Cost/Fee:	LOE:
Contractor WP Dated: 07/28/2015	$79,996.00	542
Cumulative Approved:	$79,996.00	542

Work Assignment Manager Name: Rajbir Parmar (Signature) (Date)	Branch/Mail Code: Phone Number: 706-355-8306 FAX Number:
Project Officer Name: Meghan Hessenauer (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1040 FAX Number:
Other Agency Official Name (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 2-53

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-12-021	09/26/2012 To 09/25/2015 Base Option Period Number 2	NPDES Vessel Considerations

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 09/26/2014 To 09/25/2015

Comments:
Work shall not commence on this work assignment until September 26, 2014.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Contract Period:	Cost/Fee:	LOE:
	09/26/2012 To 09/25/2015		
This Action:			
Total:			

Work Plan / Cost Estimate Approvals

Contractor WP Dated:	Cost/Fee:	LOE:
Cumulative Approved:	Cost/Fee:	LOE:

Work Assignment Manager Name: Kathryn Kelley (Signature) (Date)	Branch/Mail Code: Phone Number: 202-564-7004 FAX Number:
Project Officer Name: Meghan Hessenauer (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1040 FAX Number:
Other Agency Official Name: (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

Performance Work Statement
Contract EP-C-12-021
Work Assignment 2-53

Title: NPDES Vessel Regulatory Considerations

Work Assignment Manager: Kathryn Kelley
Office of Wastewater Management
OW/OWM/WPD/IB, 4203M
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460
Tel: (202) 564-7004
Fax: (202) 566-6392
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Alternate Work Assignment Mgr: Ryan Albert
Office of Wastewater Management
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1200 Pennsylvania Avenue, N.W.
Washington, DC 20460
Tel: (202) 564-0763
Fax: (202) 566-6392
E-mail: albert.ryan@epa.gov

Period of Performance: September 26, 2014 through September 25, 2015

General Work Assignment Requirements:

Confidential Business Information: The Contractor will, at all times, adhere to Confidential Business Information (CBI) procedures, including those requirements listed at 40 CFR Part 2, when handling industry information that the EPA Work Assignment Manager (WAM) identifies as CBI. When noted as necessary by the EPA WAM, the Contractor will manage specified reports, documents, and other materials, as well as specified draft documents developed under this WA in accordance with the procedures set forth in its "Security Plan for Handling Confidential Business Information Under the Clean Water Act (CWA)," dated March 5, 2004 or its successor approved plans.

Identification as Contracting Staff: To avoid the perception that Contractor personnel are EPA employees, Contractor personnel shall be clearly identified as independent Contractors of EPA when participating in events with outside parties and visiting field sites. When speaking with the public the Contractor should refer all interpretations of policy to the EPA WAM.

Limitation of Contractor Activities: The Contractor shall submit drafts of all deliverables to the EPA WAM and alternate EPA WAM for review. The Contractor shall incorporate all EPA WAM comments into the final deliverables, unless otherwise agreed upon by the EPA WAM. The Contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), Project Officer (PO), and WAM.

Compliance with Section 508 Requirements: Section 508 of the Rehabilitation Act mandates that all Federal departments and agencies make electronic and information technology accessible to individuals with disabilities. This includes all individuals with disabilities wishing to access Federal information. EPA is committed to making every possible effort to ensure that all electronic and information technology developed, procured, maintained, or used by EPA is accessible to all persons with disabilities. Consequently, according to the contract clause "EPAAR 1552.2119-79: Compliance with EPA Policies for Information Resources Management," all deliverables submitted by the Contractor shall be compliant with the Section 508 requirements.
Travel: When travel outside of the local area becomes necessary in support of this WA, a travel authorization must be submitted to and approved by the EPA WAM and the EPA Project Officer prior to the travel taking place. All travel shall be in accordance with FAR 31.205-46.

Draft and Deliverable format: All memos, draft comments, summaries and responses are to be provided electronically in Microsoft Word and/or Excel. The Contractor shall clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support their conclusions. EPA will review all outputs in draft form, and the Contractor shall incorporate the changes specified by EPA prior to providing a final version. All final materials, e.g., memos, tables, spreadsheets, etc. are to be prepared only after incorporating comments on draft documents provided by the EPA WAM.

Meetings and Conferences: No single event under this Work Assignment is anticipated to exceed $20,000. The Contractor shall immediately notify the EPA Contracting Officer, PO and WAM of any anticipated event involving support for a meeting, conference, workshop, symposium, retreat, seminar or training that may potentially incur $20,000 or more in cost during performance. Conference expenses are all direct and indirect costs paid by the government and include any associated authorized travel and per diem expenses, room charges for official business, audiovisual use, light refreshments, registration fees, ground transportation and other expenses as defined by the Federal Travel Regulations. All outlays for conference preparation should be included, but the federal employee time for conference preparation should not be included. After notifying EPA of the potential to reach this threshold, the Contractor shall not proceed with the task(s) until authorized to do so by the Contracting Officer.

Task 1: Project Management

The Contractor shall prepare a work plan for all phases of the work assignment within 30 calendar days of receipt of WA. The work plan shall present the technical approach by task; the project schedule and deliverables; staffing details; level of effort by task, staff member, and professional labor mix; and the estimated budget.

The Contractor shall provide electronic copies of the monthly progress reports to the EPA Project Officer (PO), WAM, and alternate WAM. Each progress report shall describe the technical work and expenditures for the same time period as the corresponding invoice. The reports shall list by task the amount of work completed and include a table of hours by personnel for each task. The reports also shall identify any problems or difficulties. Quarterly, the reports shall include a QA section that summarizes QA steps taken in the performance of work during the reporting period.

The Contractor shall submit an email that proposes a standardized naming convention and version control for all deliverables associated with the WA. This system will ensure that deliverables are clearly named and dated and that the sequence of versions of a document is clear. The EPA WAM will review the email and then provide the contractor with written notification of approval or edits that need to be made. After receiving notification of approval the contractor shall use this standardized convention for all deliverables associated with the work assignment(s).

The Contractor shall immediately notify the EPA WAM by telephone of any problems that may impede performance, along with any corrective actions needed to solve the problems.

Task 1 - Deliverables:

1 – 1.0 - Work plan and budget: Within 30 days of receipt of work assignment

1 – 2.0 – Progress/budget reports: Included in the Monthly Technical and Cost Progress Report

1 – 3.0 - Problem report: Contractor shall notify the EPA WAM and alternate WAM immediately upon discovery of a problem.

Task 2: Develop the Quality Assurance Project Plan

The Contractor shall prepare a Quality Assurance Project Plan (QAPP) for documenting how quality assurance and quality control will be applied to the collection and use of environmental data. As requested by EPA, the contractor shall update the QAPP if necessary during this option year.
The QAPP will be used to assure that any results obtained are of the type and quality needed and expected. The QAPP shall address the collection and use of wastewater sampling data, facility questionnaire data, any models to be used, and secondary data

(including the acceptance criteria), and any new database management requirements. The QAPP must describe the controls to ensure high-quality data entry. The text of the QAPP also must explicitly reference tools that the contractor will use to document and review reproducibility and traceability, such as SOPs, check lists, and guidelines. The QAPP must include the tools as attachments for EPA's review and approval. In addition, the contractor shall document relevant QA activities in any major deliverable.

Task 2 - Deliverables:

2 - 1.0 - Draft QAPP: A QAPP will be submitted within 30 days of request by EPA. The Contractor must receive technical direction from the WAM to begin development of these QAPPs. For tasks that do not involve the generation, management, distribution, or use of primary or secondary environmental data that will be used or have the potential for use in environmental decision making, a QAPP is not required

2- 2.0 - Final QAPP: A final QAPP is due within 14 days from receipt of EPA WAM's comments (which shall incorporate comments from the WPD QA officer).

Task 3: Evaluate options for managing ballast water for small vessels, focused on options for vessels entering and traversing the Great Lakes

Inland and Seagoing Vessels less than 1600 gross registered tons (3000 gross tons) are not required to meet the numeric treatment limits in Section 2.2.3.5 of the Final VGP. An inland vessel means a vessel that operates exclusively on inland waters. EPA encouraged vessels in this size class to use alternate measures to reduce the number of living organisms in their ballast water discharges, including use of those measures found in Part 2.2.3.5 of the VGP and use of onboard potable water generators. However, EPA did not feel comfortable mandating these requirements because the Agency did not have sufficient information about the availability and efficacy of these management approaches for these vessels. EPA concluded that, though technologies are promising for future development, they did not support the conclusion that numeric ballast water treatment limits for small inland and seagoing vessels represents BAT at this time or over the life of the permit. For example, most ballast water treatment systems have been designed for larger vessels and/or vessels which only uptake or discharge ballast water on either end of longer voyages and the record at proposal contained no evidence that any vessels smaller than 1600 GRT had successfully installed a treatment systems on their vessel. Supplemental analysis by the Agency confirmed the conclusion that the ballast water numeric limits did not reflect BAT for this class of vessels.

Some smaller vessels, because of their unique designs and operations might be able to use onboard potable water for ballasting. This is particularly true for vessels that use ballast to compensate for fuel burn-off and sewage generation. This task is designed to thoroughly evaluate whether such systems can be used as an effective form of ballast

water management for these vessels, and if so, whether they are environmentally effective.

Subtask 3A:

The contractor shall finalize feasibility studies for placement of onboard potable water generators with actual vessel designs. The designs will be for 1-4 vessel types, and may include various small vessel types such as tug boats, small to medium cruise ships, research vessels (such as EPA's bold), etc. The designs should contemplate actual potable water generators placed onboard actual vessel designs, and should be drawn up with the intention for ultimate public release. EPA will work with vessel operators to gain ideas for ideal vessel designs. The contractor shall finalize a short description and analysis looking at the range of potable water generators available, their production capacity, how they operate, and their cost. The contractor shall incorporate bench or land-based testing with a potable water generator to evaluate its efficacy for preventing the discharge of living organisms from ballast water tanks from studies conducted in partnership with MARAD in the previous option period.

Subtask 3A - Deliverables:

3A - 1.0 – Final Report: The contractor shall deliver a final report, based on draft reports completed within the previous option period within 30 days of receiving comments and technical direction from the WAM with designs outlining the feasibility of using potable water generators onboard smaller vessels. That report shall include discussing the characteristics of potable water generators outlined above and discuss the environmental performance of the potable water generator.

3A - 2.0 – Laboratory Reports: All laboratory reports from sampling shall also be provided directly to the WAM immediately upon their completion.

Subtask 3B: Accountability and relevance to the Great Lakes

Protecting the Great Lakes from the introduction of new invasive species is one of the priorities of EPA and the Federal Government. Task 3 has been designed to meet these goals. Subtask B is designed to produce a short accountability report for how (and whether) this research has furthered EPA's goals on this front.

Subtask 3B - Deliverables:

3B - 1.0 – Accountability Report: Within 30 days of completing the final reports, a short description of how funds were used for Task 3 activities for both this contract option period and the previous contract option period (as applicable), how much was spent on each subtask, and why the work is directly relevant to the goal of preventing the introduction of new invasive species to the Great Lakes and slowing their dispersal pathways in those water bodies.

Task 4: Evaluate Laker Best Management Practice Efficacy

In the 2013 VGP, EPA included several best management practices (BMPs) for Lakers to reduce the likelihood of those vessels dispersing and spreading aquatic invasive species. This task is designed to better estimate the efficacy of those mandatory management measures.

Subtask 4A: The contractor shall conduct a literature review of all best management practices identified, and produce a summary of both the theoretical and experimental results examining these BMPs. This literature review might extrapolate from other industries to fill in significant information gaps (e.g., looking at screen design for preventing colonization of mussel species in drinking water infrastructure).

Subtask 4A - Deliverables:

4A - 1.0 – Draft Literature review: Within 30 days of receiving technical direction from the WAM, the contractor shall provide EPA with a draft literature review discussing possible relevant sources of information.

4A – 2.0 – Final Literature Review: Within 30 days of receiving comments and technical direction from the WAM, a final literature review discussing any results relevant to Laker BMP efficacy.

Subtask 4B:
Based upon the results of the literature review, and contingent upon funding, the contractor shall conduct bench scale testing of specific Laker BMPs (e.g., examining how pumps induce mortality, whether maintained screens versus less maintained screens reduce living organism concentration) to evaluate their efficacy for reducing the discharge of living organisms from Laker ballast water tanks. EPA will work with the contractor on developing the study design, including specifying the number of replicates and methods to be used. Any testing must be conducted by facilities with experience quantifying the number of living organisms in effluent. Depending on the location or facility site selected, this task could require non-local travel by the contractor.

Subtask 4B - Deliverables:

4B - 1.0 – Study Design: Within 30 days of receiving technical direction from the WAM, the contractor shall provide a study design describing how the goals of subtask 4B will be accomplished, including outlining the methods which will be used, facilities used to accomplish the tasks, and how the research approach is generally consistent with other studies. The study design shall include QA/QC elements consistent with Task 2.

4B - 2.0 – Laboratory Reports: All laboratory reports from sampling shall be provided directly to the WAM immediately upon their completion.

4B – 3.0 – Draft report: Within 30 days of receiving the final laboratory report, a draft report discussing the environmental performance of Laker BMPs in terms of reducing the number of living organisms in discharges from Laker ballast water tanks.

4B - 4.0 – Final Report: Within 14 days of receiving comments and technical direction from the WAM, a final report discussing the environmental performance of Laker BMPs.

Subtask 4C: Accountability and relevance to the Great Lakes

Protecting the Great Lakes from the introduction and spread of invasive species is one of the priorities of EPA and the Federal Government. Task 4 has been designed to meet these goals. Subtask 4C is designed to produce a short accountability report on how (and whether) this research has furthered EPA's goals on this front.

Subtask 4C - Deliverables:

4C - 1.0 – Accountability Report: Within 30 days of completing the final report, a short description of how funds were used for subtasks A and B (as applicable), how much was spent on each subtask, and why the work is directly relevant to the goal of reducing the spread of invasive species within the Great Lakes and slowing their dispersal pathways in those water bodies.

Task 5: Provide Technical and Implementation Support to EPA's Vessel General Permitting Program (including for the VGP and sVGP)

The Contractor shall support EPA's development of technical and factual materials for EPA use in implementing its Vessel General Permitting Program, including work for developing the factual information for the next VGP and sVGP as appropriate. This support will primarily be focused around developing background information and effluent limits for those permits, but may also include conducting research for other vessel related discharge issues.

Subtask 5A: The contractor shall refine as needed literature reviews, develop background materials, research technologies, and work with industry experts and government officials to develop a solid foundation for instituting national permit limits. The contractor may be asked to update existing technical development documents (TDDs) and produce or finalize 0-3 additional TDDs. After reviewing these sources of information, the contractor shall prepare and/or finalize 10 – 50 page technical memoranda (plus appendices with relevant data) describing the sources of information, key findings from those sources, technological capabilities and efficacy, cost information where relevant, and what conclusions, if any, can be drawn from this information. Once final, these TDDs shall be of sufficient quality to place in the docket and serve as part of the administrative record for decision making. Subject areas which may be researched include, but will not be limited to:

1. Advances in anti-foulant hull coating technologies/and pollution and invasive species control options
2. Advances in ballast water treatment system technology development
3. Evaluations of information submitted as part of EPA's monitoring requirements
4. Inventories of available environmental acceptable lubricants for vessel use, and evaluate the extent to which vessel operators have converted to these applications as a result of VGP/sVGP requirements (using eNOI sources)
5. Other discharge types and treatment options as necessary.

Within 30 days of receiving written technical direction from the EPA WAM to proceed, the contractor shall submit an annotated outline of the TDD and appendices identifying the information, conceptual approaches, and analyses, and scope of issues to be addressed in the technical memorandum. After approval by the EPA WAM, the Contractor shall prepare and submit a draft version of the TDD within 45 days. The Contractor shall submit the final TDD within 14 days of receiving technical comments from the EPA WAM.

Subtask 5A - Deliverables:

5A - 1.0 - Draft TDDs: The Contractor shall provide draft TDDs describing different technical and implementation issues. The number of TDDs will be between 0 to 3 documents. The kinds of information and format of the draft TDDs and the number of draft TDDs will be determined by the WAM after discussion between the WAM and contractor as provided through written technical direction.

5A - 2.0 - Final TDDs: The Contractor shall provide final TDDs describing different technical and implementation issues. The number of technical memoranda will be between 0 to 6 documents. The number of final TDDs will be determined by the EPA WAM after discussion between the EPA WAM and contractor as provided through written technical direction.

Subtask 5B: The contractor shall support EPA in finalizing a study report on the effectiveness of oily water separators in treating bilgewater discharges. EPA has conducted a study on treated bilgewater discharges from large vessels to evaluate shipboard performance of the best treatment systems. The study characterizes treated bilgewater discharges and evaluates their impacts on the environment. These vessels may include, but are not limited to container vessels, bulk carriers, and other large vessels. The report would be finalized, at the latest, by the end of calendar year 2014. EPA would use the results of this study to inform its work at the International Maritime Organization (IMO).

The study includes

- Characterization of the effluent concentrations of treated bilgewater discharges for representative vessels

- Determination of types of separators, polishing treatments, and oil content monitors used for representative vessels
- Determinations of the volumes of those discharges, including average volumes for
    - Representative single vessels and
    - Each class vessel
- Analyses and findings as to the nature and extent of the potential effects of the discharges, including determinations of whether those discharges pose a risk to human health, welfare, or the environment and the nature of risks;
- Determination of the benefits to human health, welfare, and the environment from reducing, eliminating, controlling, or mitigating the discharges.

The contractor shall prepare a draft final and final study report which will involve supporting EPA in the statistical analysis of the data and analyzing the impacts of the discharge on surrounding environments for the worst case scenario.

Subtask 5B - Deliverables:

5B - 1.0 - The contractor shall deliver the final Report to the WAM 60 days after receiving a copy of the draft report with any EPA comments. The contractor will revise the report as required through written technical direction from the EPA WAM.

Subtask 5C: Upon receiving written direction from the WAM, the contractor shall assist EPA in the issuance, or revision of the VGP or sVGP in the event the Agency considers taking additional permitting action. For example, EPA routinely evaluates the appropriateness of the current VGP permit limits and that permit is currently being challenged in federal court. This action could include assembling key background information, providing docket support, and assisting in preparation of briefing materials.

Subtask 5C - Deliverables:

5C - 1.0 - Briefing Materials: Briefing materials, assigned by the EPA WAM via written technical direction, due 5 days prior to the stakeholder meeting.

5C - 2.0 - Technical Memorandum and Background Information: Up to 10 technical memoranda discussing issues on topics assigned by the EPA WAM via written technical direction.

5C – 3.0 – Docket Support: Within 7 days of receiving technical direction, provide support for identifying supporting documents and uploading documents into docket for any additional permit actions.

Task 6: Provide Technical Support Implementing EPA's Obligations as a Result of the Successful Endangered Species Act (ESA) Consultation for the sVGP and the VGP

On November 28 and 29, 2012, EPA successfully concluded formal consultation with NOAA Fisheries and the Fish and Wildlife Service (i.e., the Services). As a result of that consultation, EPA agreed to some follow-up implementation activities as described in the Services Biological Opinion recommendations. These activities include periodically analyzing data received by the Agency and preparing short reports of those data and periodically reviewing whether there have been new aquatic nuisance species introductions into U.S. waters.

Subtask 6A: Support the Implementation of the Services Biological Opinion Recommendations

At the direction of the WAM, the contractor shall support analyzing NOI data, reported analytical data, specified invasive species databases, and other data sources as applicable to prepare short reports that EPA will provide to the Services. Additionally, EPA, in consultation with the Services, has developed a draft plan for how to approach the analyses of these data sources. The contractor may be asked to help finalize this plan. These products will serve to document to the Services that EPA continues to engage with the regulated universe, and that the permit issuance remains unlikely to jeopardize listed or threatened species.

Subtask 6A - Deliverables:

6A – 1.0 Final Plan: The contractor shall provide EPA with a final plan within 21 days of receiving comments on the draft plan and technical direction from the WAM.

6A – 2.0 Analysis of NOI, annual report, and other data submitted: Within 21 days of receiving technical direction from the WAM, the contractor shall prepare a short summary report of NOI, annual report, and other data submitted that characterizes elements of the regulated universe.

6A – 3.0: Completing Monitoring report: Within 60 days of receiving technical direction from the WAM, the contractor shall submit a monitoring report to EPA which fulfills the obligations contained within the final plan, including filling in key data tables and summarizing any other new relevant information.

Task 7: Ballast water treatment system monitoring probe inventory and summarizing existing possible "next generation" monitoring approaches.

The VGP requires that vessel operators conduct monitoring when they use ballast water treatment systems to meet the requirements of the VGP. Most of the requirements, contained within functional monitoring, will be conducted using probes and other sensors. Additionally, there are several promising approaches for biological monitoring for future iterations of the VGP (e.g., see King and Tamburri, 2010 and Drake et al., 2014). EPA needs to better understand existing research and the status of prototype development of these systems.

Subtask 7A: Inventory existing sensors and probes on existing ballast water treatment systems having received U.S. Coast Guard Alternate Management System Determinations. Information shall include the name of the system, the type of system, and how they monitor the treatment and discharge processes. Specific information on sensor, probe, and other information shall include the type of process used (e.g., DPD sensor for chlorination), the make and/or model as available and appropriate of the probe, and how those data are recorded and stored (including such as whether they are made available via monitors or print outs in a human readable format).

Subtask 7A: Deliverables

7A 1.0 – Within 21 days of receiving technical direction from the WAM, the contractor shall submit an annotated outline, including a list of all systems having received USCG AMS and type approval and an introductory description. of how the contractor intends to collect and analyze more detailed data.
7A 2.0 – Within 60 days of receiving technical direction from the WAM, the contractor shall submit a draft report to EPA which contains details on each system. The contractor shall also make underlying data available to EPA in database format.
7A 3.0 – Within 30 days of receiving technical direction from the WAM, the contractor shall submit a final report and supporting data to EPA.

Subtask 7B: The contractor shall summarize the state of "next generation" ballast water monitoring approaches that might potentially be used for future iterations or revisions of the VGP (e.g., fluorescence as an indicator of gross non-compliance for autotrophs, see Drake et al. 2014). This work shall include referencing and summarizing the existing state of the science, summarizing existing commercially available probes (e.g., Hach; turner scientific) and the validation work they have undergone to date, and identifying key needs to make using these tools feasible in self-monitoring applications.

Subtask 7B: Deliverables

7B 1.0 – Within 21 days of receiving technical direction from the WAM, the contractor shall submit an annotated outline, which shall include how the contractor intends to analyze the most current state of the science.
7B 2.0 – Within 120 days of receiving technical direction from the WAM, the contractor shall submit a draft report to EPA which contains detailed information regarding existing monitoring tools, the state of the science, and future needs to realize these tools for self-monitoring purposes.
7B 3.0 – Within 30 days of receiving technical direction from the WAM, the contractor shall submit a final report and supporting data to EPA.

Task 8: Supporting Implementation of the VGP and sVGP and other Vessel Program Outreach

The Contractor shall support EPA with the development of materials for implementation and outreach of the VGP and sVGP. Additionally, the Contractor shall support EPA's development of outreach materials and efforts in support of its vessel program.

Subtask 8A: Contractor shall prepare technical materials such as 1-2 page factsheets and power point presentations on permit conditions, internal as well as external stakeholder meetings, or briefings for senior management. Contractor shall assume up to 10 short implementation fact sheets and implementation check lists. Some of those fact sheets may need to be translated into languages of the IMO (French, Spanish, Chinese, Russian, and/or Arabic). The contractor shall also support 0-5 online meetings and webinars as requested by the EPA WAM.

Subtask 8A - Deliverables:

8A - 1.0 - Briefing Materials: Briefing materials due 5 days prior to the stakeholder meeting.

8A - 2.0 – Online Meeting/Webinar Support: Meeting/Webinar registration pages will be due 1 week after technical direction from the WAM. Meeting/Webinar summary reports will be due 2 weeks after completion of the webinar as requested by the EPA WAM.

8A - 3.0 - Technical Memorandum and Fact Sheets: Up to 10 technical memoranda discussing common questions or other implementation issues on topics assigned by the EPA WAM via written technical direction.

8A - 4.0 - Develop Brochures: Up to 2 brochures for use on-line. Content and style will be assigned by the EPA WAM via written technical direction.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 2-53

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-12-021	09/26/2012 To 09/25/2015	NPDES Vessel Considerations
	Base Option Period Number 2	

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [X] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 09/26/2014 To 09/25/2015

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*): ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/26/2012 To 09/25/2015	$0.00	0
This Action:	$299,011.00	3,084
Total:	$299,011.00	3,084

Work Plan / Cost Estimate Approvals

	Cost/Fee:	LOE:
Contractor WP Dated: 10/22/2014	$299,011.00	3,084
Cumulative Approved:	$299,011.00	3,084

Work Assignment Manager Name: Kathryn Kelley (Signature) (Date)	Branch/Mail Code: Phone Number: 202-564-7004 FAX Number:
Project Officer Name: Meghan Hessenauer (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1040 FAX Number:
Other Agency Official Name: (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 2-53

☐ Other ☒ Amendment Number: 000001

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-12-021	09/26/2012 To 09/25/2015 Base Option Period Number 2	NPDES Vessel Considerations

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: N/A

Purpose:
- ☐ Work Assignment
- ☒ Work Assignment Amendment
- ☐ Work Plan Approval
- ☐ Work Assignment Close-Out
- ☐ Incremental Funding

Period of Performance: From 02/06/2015 To 09/25/2015

Comments:
The purpose of this Amendment 1 is to REMOVE Kathryn Kelley as the Work Assignment Manager (WAM) and to ADD Jack Faulk (Phone: 202-564-0768, Email: faulk.jack@epa.gov) as the WAM.

☐ Superfund — Accounting and Appropriations Data — ☒ Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Contract Period:	Cost/Fee:	LOE:
	09/26/2012 To 09/25/2015		
This Action:			
Total:			

Work Plan / Cost Estimate Approvals

Contractor WP Dated:	Cost/Fee:	LOE:
Cumulative Approved:	Cost/Fee:	LOE:

Work Assignment Manager Name: Jack Faulk (Signature) (Date)	Branch/Mail Code: Phone Number: 202-564-0768 FAX Number:
Project Officer Name: Meghan Hessenauer (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1040 FAX Number:
Other Agency Official Name (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 2-54

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-12-021	09/26/2012 To 09/25/2015	CWT Study Technical Support
	Base Option Period Number 2	

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 09/26/2014 To 09/25/2015

Comments:
Work shall not commence on this work assignment until September 26, 2014.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 09/26/2012 To 09/25/2015 — Cost/Fee: — LOE:

This Action:

Total:

Work Plan / Cost Estimate Approvals

Contractor WP Dated: — Cost/Fee: — LOE:

Cumulative Approved: — Cost/Fee: — LOE:

Work Assignment Manager Name: Jesse Pritts (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1038 FAX Number:
Project Officer Name: Meghan Hessenauer (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1040 FAX Number:
Other Agency Official Name (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

Performance Work Statement
Contract EP-C-12-021
Work Assignment 2-54

Title: Centralized Waste Treatment Study Technical Support

Work Assignment Manager (WAM): Jesse Pritts

Alternate Work Assignment Manager: Lisa Biddle

Period of Performance (POP): September 26, 2014 through September 25, 2015

I- Purpose

The purpose of this work assignment is to support EPA's development of a study to evaluate the centralized waste treatment category, specifically facilities that manage wastewater from oil and gas extraction activities.

II- Introduction

This work assignment supports EPA's development of a study of management of wastewaters from oil and gas extraction activities by centralized waste treatment (CWT) facilities.

EPA currently regulates discharges from the CWT category pursuant to effluent limitations guidelines and standards (collectively referred to as ELGs) found at 40 CFR Part 437. Some of these facilities accept wastewaters from oil and gas extraction activities. However, the treatment technologies used by some CWT facilities are not amenable to treatment of pollutants that may be found in oil and gas wastewaters, such as total dissolved solids (TDS) and radioactivity.

EPA is developing a study to evaluate management of these wastewaters. The study will be used to inform potential future agency activities regarding management of these wastewaters.

EPA has conducted a number of activities under WA 1-54. This work assignments continues work conducted under the previous work assignment and adds additional tasks.

III- General Work Assignment Requirements (PWS Section 3.0)

Deliverable Formatting and Terminology

Throughout this work assignment, the contractor shall provide draft and final reports to EPA in electronic format, with hard copy format also provided when directed by the work assignment manager. The contractor shall discuss the computer file formats to be used for word processing, spreadsheet, database and graphics with the EPA WAM prior to file preparation. The EPA WAM

will identify for the contractor which documents will be posted on EPA's Effluent Guidelines webpage. These documents posted to the Effluent Guidelines webpage must be Section 508 compliant.[1]

Travel

Non-local travel by the contractor employees and/or subcontractors will be required to support the scope of this work assignment (e.g., conducting site visits and sampling). The contractor shall provide specific travel details and costs in a request for travel approval by the EPA WAM and the EPA Project Officer (PO) before each trip occurs (as specified by the contract per clause H.32).

Event Expenses Not to Exceed $20,000

No single event under this Work Assignment is anticipated to exceed $20,000. The Contractor shall immediately notify the EPA Contracting Officer, PO and WAM of any anticipated event involving support for a meeting, conference, workshop, symposium, retreat, seminar or training that may potentially incur $20,000 or more in cost during performance. Conference expenses are all direct and indirect costs paid by the government and include any associated authorized travel and per diem expenses, room charges for official business, audiovisual use, light refreshments, registration fees, ground transportation and other expenses as defined by the Federal Travel Regulations. All outlays for conference preparation should be included, but the federal employee time for conference preparation should not be included. After notifying EPA of the potential to reach this threshold, the Contractor shall not proceed with the task(s) until authorized to do so by the Contracting Officer.

Confidential Business Information

The contractor shall, at all times, adhere to Confidential Business Information (CBI) procedures when handling industry information. The contractor shall manage all reports, documents, and other materials and all draft documents developed under this work assignment in accordance with the procedures set forth in the "Security Plan for Handling Confidential Business Information Under the Clean Water Act" (September 2002) or its successor approved plans.

Identification as Contracting Staff

To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and visiting field sites. When speaking with the public the contractor should refer all interpretations of policy to the EPA WAM.

Limitation of Contractor Activities

The contractor shall submit drafts of all deliverables to the EPA WAM for review prior to submission of the final product. The contractor shall incorporate all EPA WAM comments into all final deliverables, unless otherwise agreed upon by the EPA WAM. The contractor will

[1] See http://www.epa.gov/epahome/accessibility.htm.

adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), PO, and WAM.

Deliverable Due Dates

For the purpose of developing this work plan, the contractor shall assume the deliverable due dates in the tables for each task presented further. Major technical deliverables shall be subject to internal contractor peer review by an expert(s) not directly involved in the mainstream Work Assignment tasks. Deliverables will be prepared with proper adherence to EPA style and format requirements.

IV- Tasks

Task 1: Program Management

The contractor shall prepare and submit a detailed work plan that outlines the approach and methodology that shall be used to perform the tasks identified in this Work Assignment. The work plan shall specify the work to be done for each task, and the allocation of personnel, hours and budget by task and deliverables. The work plan shall be submitted to the EPA PO/WAM in accordance with contract requirements.

This task also includes contract management such as communications between EPA Contracting Officer Representatives and their respective contractor counterparts. These communications would concern the progress made on the work assignment tasks and coordination of activities to facilitate optimal contractor performance.

The contractor shall provide electronic copies of the monthly progress reports to the WAM and PO. Each progress report shall describe the technical work and expenditures for the same time period as the corresponding invoice. The reports shall list by task the amount of work completed and include a table of hours by personnel for each task. The reports also shall identify any problems or difficulties. The contractor shall inform the EPA CO, PO and WAM in writing when 50%, 75%, and 90% of the allocated hours or dollars have been expended.

TASK 1 DELIVERABLES	**DEADLINES**
Work Plan	In accordance with contract requirements
Progress Reports	monthly

Task 2: Technical Support for Preparation of Preliminary Data Summary of the Centralized Waste Treatment Industry

The contractor shall provide technical support to EPA in preparing a preliminary data summary (or study) of the CWT industry. The primary focus of this study is to evaluate current and future trends in the CWT industry with respect to treatment and management of wastewaters from oil and gas (O&G) extraction activities.

The recent increase in shale oil and shale gas extraction activities through practices such as hydraulic fracturing has created new challenges with respect to management of wastewaters. Flowback and produced waters from oil and gas extraction activities can contain a variety of pollutants, notably high levels of TDS and, depending on the formation, naturally occurring radioactivity. In addition, additives such as friction reducers and biocides are frequently utilized during well development and can contribute to wastewater pollutant loads.

While many wastewaters are recycled and reused by producers, treatment and discharge is being utilized in certain cases. Where these wastewaters are being managed by treatment and discharge at CWT facilities, there is the potential of discharge of pollutants of concern to Waters of the U.S. Some CWT facilities that are accepting these wastewaters, or may potentially accept these wastewaters in the future, may not have advanced treatment in place that is amenable to removal of the pollutants of concern. In addition, treatment of these wastewaters may present unique challenges, such as disposal of concentrated brines or other treatment residuals. The study will evaluate the full spectrum of wastewater management practices at CWT facilities accepting oil and gas extraction wastewaters, including treatment and discharge, recycling, zero discharge, barrel-in/barrel-out, etc.

The goal of the study is to evaluate current practice in the CWT industry with respect to oil and gas extraction wastewater management and to estimate, to the extent feasible, future industry trends at CWT facilities resulting from current and predicted oil and gas extraction wastewater management practices. Specifically, the contractor will provide support to EPA in evaluating the following:

- Characterization of the CWT industry (number of facilities accepting or potentially accepting O&G wastewaters, types of treatment in place, quantities of wastewater being treated and discharged or otherwise managed (i.e., direct, indirect, zero), industry capacity, recycling and reuse opportunities, location and size of facilities, etc.)
- Current regulatory climate (state/local jurisdiction requirements/prohibitions, federal regulations, etc.)
- Treatment of oil and gas wastewaters (pollutants of concern, available treatment technologies and performance, costs, energy requirements, residuals management, pollutant transfer, etc.)
- Estimates of facility-specific and industry-wide pollutant discharges, to the extent feasible given limitations of data
- Estimates of costs to comply with alternative management practices

To obtain the necessary data for developing the study, EPA anticipates conducting site visits, sampling and field analysis at a number of facilities (Task 5). EPA also anticipates using Clean Water Act § 308 authority to collect information and data, such as wastewater treatment practices and costs, from nine or fewer centralized waste treatment companies, and/or oil and gas operators. The contractor shall assist EPA with the technical aspects of these activities, such as developing lists of questions and compiling information received.

Other potential data sources that the contractor may utilize in developing the study include technical and scientific literature, commercial data sources, vendors, internet searches, and state

regulatory agencies. In addition, data collected under Task 5 is expected to be a primary source of information regarding wastewater characteristics and treatability.

Under a separate effort, EPA will also be collecting information related to economic aspects of the industry as well as environmental impacts associated with discharges from this industry. The cost and performance information obtained by the contractor may be used as inputs for these analyses. The contractor shall therefore consult with EPA regarding use of data and information collected and generated in these corollary analyses, and provide support activities as directed.

The contractor shall maintain an index of all data, studies and information obtained and generated and shall deliver this index on a monthly basis.

The following sub-tasks describe the major chapters of the study.

2.1 Industry Profile

The contractor shall update the industry profile of the CWT industry prepared under WA 1-54. This updated profile shall include additional information that characterizes the number, type, size and location of CWT facilities and identify those that manage oil and gas wastewaters, type of treatment, whether the facility discharges to surface waters, is a zero discharge facility, recycles, etc. The profile shall estimate current wastewater generation and disposal volumes by the oil and gas extraction industry and estimate future CWT needs for management and disposal, to the extent feasible. The profile may be supplemented with information obtained from facilities, state oil and gas permitting and wastewater permitting agencies, commercial databases and EPA's data collection activities, as well as other data sources identified by EPA and the contractor.

2.2 Wastewater Characterization

The contractor shall update the detailed description of oil and gas wastewater characterization data prepared under WA 1-54. This update shall summarize additional data that characterizes the pollutants present in these wastewaters as well as the volumes that are produced from different types of wells, including data collected under EPA's site visits and sampling activities. Descriptions of existing regulatory programs addressing management of those wastewaters shall also be discussed.

2.3 Wastewater Management Practices

The contractor update the description of wastewater management practices at CWTs managing oil and gas wastewaters prepared under WA 1-54. This chapter shall describe treatability of wastewaters, the unit treatment processes, costs, technical feasibility, and other relevant factors, including solid waste generation and residuals management. Other relevant topics, such as transportation methods, shall also be discussed.

The following table contains the major deliverables and milestones under Task 2:

TASK	DELEVERABLE	DEADLINE
2.1	Updated Industry Profile Chapter	December 10, 2014
2.2	Updated Wastewater Characterization Chapter	March 11, 2015
2.3	Updated Wastewater Management Practices Chapter	May 6, 2015

Task 3: Quality Assurance

EPA policy requires that an approved Quality Assurance Project Plan (QAPP) or Programmatic Quality Assurance Project Plan (PQAPP) be in place for work that involves the collection, generation, evaluation, analysis or use of primary environmental data. The QAPP or PQAPP defines and documents how specific data generation and collection activities shall be planned, implemented, and assessed during a particular project. This contract has an approved PQAPP for all necessary work envisioned under this work assignment, with the exception of supplemental QA/QC information in sampling and analysis plans (SAPs) for new data collection activities as described below.

Background

Quality Assurance Project Plans are required under the Agency's Quality Assurance Policy CIO-2105, formerly EPA Order 5360.1 A2 (May 2000), and implementing guidance CIO-2105-P-01-0 (May 2000). All projects that involve the generation, collection, analysis, and use of environmental data must have an approved Quality Assurance Project Plan (QAPP) in place prior to the commencement of the work. Examples of these environmental data operations are provided in **Table 3-1** below.

Table 3-1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data

Item	Examples
Data	Includes field sampling information (sample location information, flow measurements, temperature, pH, physical observations, etc.), laboratory measurements (e.g., chemical, physical, biological, radiological measurements), data collected from questionnaires, economic data, census data, and any other types of existing data (i.e., data generated for a different purpose or generated by a different organization)
Data generation	Includes field studies, laboratory studies, and generation of modeling output
Data collection	Includes field surveys, questionnaire surveys, literature searches, and third party data
Data evaluation	Includes data inspection, review, assessment, and validation

Table 3-1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data

Item	Examples
Data analysis	Includes statistical, engineering, and economic analysis, and testing, evaluation, and validation of methods and models; database creation, data extraction, and data manipulation
Data Use	Any use of data to support EPA decisions, regulations, policy, publications, or tools (including effluent guidelines, 304(m) program, standards, environmental assessments, and models, tools, or reports disseminated by EPA to assist other organizations in implementing environmental programs)

Note that QAPPs are required for the development or revision of models and software that support the generation, collection, evaluation, analysis, or use of data. (A model is set of equations and assumptions used to predict unknown data.) When existing models are used as a tool to generate or evaluate data, the project QAPP must describe the model and explain how it will be used and how its output will be evaluated to ensure the modeling effort meets the overall quality objectives for the project. Development or revision of new models also must be supported by a QAPP that describes the objectives for the model, the quality criteria that will be applied to the model, and the procedures for evaluating whether the model meets those criteria.

QA Project Plan Requirements

The Contractor has previously prepared a contract-wide Programmatic QAPP (PQAPP) for Contract EP-C-12-021. This PQAPP describes, in a single document, information that is not site or time-specific, but applies throughout the program (i.e., the duration of the contract). When tasked with preparing the PQAPP, the Contractor was informed that the PQAPP may need to be supplemented with project-specific details to support individual work assignments that involve the collection, generation, evaluation, analysis, or use of environmental data.

The activities in this work assignment involve gathering, evaluating, analyzing, and otherwise using existing environmental data (also known as "secondary" use of data). This work assignment also involves collection of new data, such as through field sampling and collection of data from companies through Clean Water Act (CWA) § 308 letters and surveys. EPA has determined that the Contractor is operating under the existing PQAPP and that the PQAPP addresses QA requirements for a portion of this work assignment related to existing data collection, as well as collection of new data through CWA § 308 letters and surveys. The applicable sections of the PQAPP are sections 4, 5, 6, 7, 8, 9 and 10.

The contractor shall be responsible for providing supplemental QA/QC information in sampling and analysis plans (SAPs) for new data collection activities described in the tasks below. In support of this work assignment, the Contractor shall ensure that the work plan provides enough detail to clearly describe:

- Specific objectives of the project(s) supported by this work assignment, including typical questions that must be answered when collecting and analyzing existing data to support the development of effluent guidelines industry studies, in this case, for the Centralized Waste Treatment industry.

- The type of data to be gathered or used under this work assignment to support the project objectives—including data from search engines, federal databases, EPA databases—as a well as a rationale for when those databases are appropriate and what data available in each will support the project
- The quality objectives needed to ensure the data will support the project objectives, and
- The QA/QC activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed.

Under WA 1-54, the contractor prepared a draft Sampling and Analysis Plan for the CWT study that included preliminary information related to sampling and analysis at CWTs. Under this WA, the contractor shall prepare facility-specific SAPs for each of the four sampling episodes to be completed under Task 5. Each of these SAPs shall contain facility-specific supplemental QA/QC information that is currently addressed in the existing PQAPP. **Table 3-2** at the end of this Task demonstrates the supplemental QA/QC information that must be included in these SAPs for collection of new data.

Additional QA Documentation Required

The EPA Quality Manual for Environmental Programs (CIO 2105-P-01-0, May 2000) requires published Agency reports containing environmental data to be accompanied by a readily identifiable section or appendix that discusses the quality of the data and any limitations on the use of the data with respect to their originally intended application. The EPA Quality Manual further requires Agency reports to be reviewed by the QA manager (or other authorized official) before publication to ensure that an adequate discussion of QA and QC activities is included. The purpose of the review is to ensure the reports provide enough information to enable a knowledgeable reader to determine if the technical and quality goals were met for the intended use of the data. Reports should include applicable statements regarding the use of any environmental data presented as a caution about possible misuse of the data for other purposes. For example, a Technical Support Document or Study Report must include a clear discussion of the quality management strategies (including the project goals and objectives, quality objectives and criteria, and QA/QC practices) that were employed to control and document the quality of data generated and used. These documents should also discuss any deviations from procedures documented in the EPA-approved QAPP(s) supporting the project, the reasons for those deviations, any impact of those deviations had on data quality, and steps taken to mitigate data quality issues.

In support of this Agency requirement, all major deliverables (e.g., Reports) produced by the Contractor under this work assignment must include a discussion of the QA/QC activities that were performed to support the deliverable, and this discussion must provide a sufficient level of detail to allow the EAD QA Coordinator (or designee) to determine if the QA/QC strategies implemented for the project sufficiently support the intended use of the data. Upon receipt, the EPA WAM will review each applicable report and certify whether the Contractor has adhered to the QA requirements documented in the Contractor's PQAPP.

The Contractor also shall provide EPA with monthly reports of QA activities performed during implementation of this work assignment. These monthly QA reports shall identify QA activities

performed to support implementation of this work assignment, problems encountered, deviations from the QAPP, and corrective actions taken. If desired, the Contractor may include this as a part of the contract-required monthly financial/technical progress report.

TASK 3 DELIVERABLES	DEADLINES
Sampling Plans with Facility-Specific Supplemental QA/QC Information	According to Task 5.2 Deadlines
Monthly reports of QA work performed (may be included in the Contractor's monthly progress report)	Monthly

Table 3-2. QAPP Elements that Require Additional Explanation in Sampling and Analysis Plans Under Task 5 for CWT Study Sampling Activities

QAPP Element	Sufficiently Addressed in PQAPP or Not Applicable to Project	Additional Detail Needed in SQAPP	Explanatory Comments Regarding Additional Detail Needed
A1. Title & Approval Sheet		X	SAPs will require approval and signature
Project title		X	
Organization's name		X	
Effective date and/or version identifier		X	
Dated signature of Organization's project manager		X	
Dated signature of Organization's QA manager		X	
Other signatures, as needed (e.g., EAD Project Officer, EAD QA Coordinator)		X	
Revision History		X	
A2. Table of Contents		X	Update
Includes sections, figures, tables, references, and appendices		X	
Document control information indicated (when required by the EPA Project Manager and QA Manager)		X	
A3. Distribution List		X	Update
Includes all individuals who are to implement or otherwise receive the QAPP and identifies their organization		X	
A4. Project/Task Organization		X	Update to identify specific personnel and roles/responsibilities for Task 5. Include specific details, such as laboratory QA/QC personnel.
Identifies key individuals with their responsibilities (e.g., data users, decision makers, project QA manager, Subcontractors, etc.) and contact info.		X	
Organization chart shows lines of authority & reporting responsibilities		X	
Project QA manager position indicates independence from unit collecting/using data		X	

QAPP Element	Sufficiently Addressed in PQAPP or Not Applicable to Project	Additional Detail Needed in SQAPP	Explanatory Comments Regarding Additional Detail Needed
A5. Problem Definition/Background		X	Describe specific data collection goals of project to be obtained through field sampling.
Clearly states problem to be resolved, decision to be made, or hypothesis to be tested		X	
Identifies project objectives or goals		X	
Historical & background information		X	
Cites applicable technical, regulatory, or program-specific quality standards, criteria, or objectives		X	
A6. Project/Task Description		X	Describe specific sampling activities to be conducted, sample locations, analytes, QA/QC measures, etc.
List measurements to be made/data to obtain		X	
Notes special personnel or equipment requirements		X	
Provides work schedule		X	
A7. Quality Objectives & Criteria for Measurement Data		X	Describe specific quality and measurement objectives to be utilized
States quality objectives and limits, both qualitatively & quantitatively		X	
States & characterizes measurement quality objectives as to applicable action levels or criteria		X	
A8. Special Training Requirements/ Certifications		X	Describe any specific training or certification requirements needed and procedures for training
Identifies specialized skills, training or certification requirements		X	
Discusses how this training will be provided/the necessary skills will be assured and documented		X	
A9. Documents & Records		X	Describe what data will be generated, how data will be obtained/presented, how QA/QC measures will be documented, procedures for record keeping, etc.
Lists information & records to be included in data report (e.g., raw data, field logs, results of QC checks, problems encountered)		X	
Notes required project & QA records/reports		X	
Gives retention time and location for records and reports		X	
B1. Sampling Process Design (Experimental Design)		X	Fully document sampling design and factors such as matrix interferences due to TDS, analysis of radioactivity, sampling equipment, etc.
Types and number of samples required		X	
Sampling network design & rationale for design		X	
Sampling locations & frequency of sampling		X	
Sample matrices		X	
Classification of each measurement parameter as either critical or needed for information only		X	

QAPP Element	Sufficiently Addressed in PQAPP or Not Applicable to Project	Additional Detail Needed in SQAPP	Explanatory Comments Regarding Additional Detail Needed
Validation study information, for non-standard situations		X	
B2. Sampling Method Requirements		X	Fully describe analytical methods to be utilized, sampling techniques, equipment, etc.
Identifies sample collection procedures & methods		X	
Lists equipment needs		X	
Identifies support facilities		X	
Identifies individuals responsible for corrective action		X	
B3. Sample Handling & Custody Requirements		X	Fully document sample handling, preservation, shipping and tracking
Notes sample handling requirements		X	
Notes chain of custody procedures, if required	X		
B4. Analytical Methods Requirements		X	Fully describe and reference both field and laboratory methods to be utilized and specific requirements for laboratories utilized
Identifies analytical methods to be followed (with all options) & required equipment		X	
Specifies any specific method performance criteria		X	
States requested lab turnaround time		X	
Provides validation information for non-standard methods		X	
Identifies procedures to follow when failures occur		X	
Identifies individuals responsible for corrective action and appropriate documentation		X	
B5. Quality Control Requirements		X	Fully document QC procedures and goals for field and laboratory analyses
Identifies QC procedures & frequency for each sampling analysis, or measurement technique, as well as associated acceptance criteria and corrective action		X	
Procedures used to calculate QC statistics (e.g., precision, bias, accuracy)		X	
B6. Instrument/Equipment Testing, Inspection, and Maintenance Requirements		X	Fully document relevant requirements and procedures for both field analytes and laboratory analyses
Identifies acceptance testing of sampling and measurement systems		X	
Describes equipment needing maintenance and frequency for such maintenance		X	
Notes availability & location of spare parts		X	
B7. Instrument Calibration & Frequency		X	Include for field instruments
Identifies equipment needing calibration and frequency for such calibration		X	
Notes required calibration standards and/or equipment		X	
Cites calibration records & manner traceable to equipment		X	

QAPP Element	Sufficiently Addressed in PQAPP or Not Applicable to Project	Additional Detail Needed in SQAPP	Explanatory Comments Regarding Additional Detail Needed
B8. Inspection/Acceptance Requirements for Supplies & Consumables		X	Document relevant criteria
States acceptance criteria for supplies & consumables		X	
Notes responsible individuals		X	
B9. Data Acquisition Requirements for Non-Direct Measurements	X		
Identifies type of data needed from non-measurement sources (e.g., computer databases and literature files), along with acceptance criteria for their use			
Describes any limitations of such data			
B10. Data Management		X	Update to consider laboratory/field collected data
Describes standard record keeping & data storage and retrieval requirements	X		
Checklist or standard forms attached to QAPP		X	
Describes data handling equipment & procedures used to process, compile and analyze data (e.g., required computer hardware & software)	X		
C1. Assessment and Response Actions		X	Update to consider laboratory/field collected data
Lists required number, frequency, & type of assessments, with approximate date & names of responsible personnel		X	
Identifies individuals responsible for corrective actions		X	
C2. Reports to Management		X	Update to consider laboratory/field collected data
Identifies the preparer and recipients of reports			
Identifies frequency and distribution of reports for:			
• Project status			
• Results of performance evaluations & audits			
• Results of periodic data quality assessments			
• Any significant QA problems			
D1. Data Review, Verification & Validation		X	Update to consider laboratory/field collected data
States criteria for accepting, rejecting, or qualifying data			
Includes project-specific calculations or algorithms			
D2. Verification & Validation Methods		X	Update to consider laboratory/field collected data
Describes process for data verification and validation			
Identifies issue resolution procedure and responsible individuals			
Identifies method for conveying these results to data users			
D3. Reconciliation with User Requirements		X	Update to consider laboratory/field collected data
Describes process for reconciling with DQOs and reporting limitations on use of data			

Task 4: General Technical Support

Using information provided by the WAM, along with information gathered or developed by the contractor, the contractor shall assemble information, create and/or modify documents and perform analyses related to centralized waste treatment facilities as directed by the WAM through written technical direction. The tasks may include work such as:

- Summarizing data to brief management
- Collecting and analyzing secondary data
- Attending meetings or preparing materials and participating in meetings, conferences and workshops to support EPA's outreach activities to the public and industry (these materials may include reports, brochures, maps, or other presentation materials)
- Attending centralized waste treatment industry technical meetings and/or conferences as directed by EPA
- Contacting state agencies to collect information about common wastewater management practices and availability of waste water treatment facilities for oil and gas extraction wastewaters

For purposes of preparing a work plan, the contractor shall assume that there shall be approximately ten written technical directives requiring quick turn-around and the contractor will be asked to attend two conferences.

TASK 4: DELIVERABLES	DEADLINES
General technical support (as above)	2 days after receiving technical direction, or as specified in technical direction, from the WAM

Task 5: Site Visits, Sampling and Field Analysis

5.1 Site Visits

The contractor shall provide support to EPA in conducting site visits at CWT facilities that accept oil and gas extraction wastewaters. Support shall include identifying candidate facilities that accept oil and gas wastewaters, scheduling conference calls with facility personnel to obtain detailed facility information and to schedule visits, obtaining operational information from facilities (treatment technologies in place, facility size and flow rates, existing monitoring data, etc.), drafting site visit reports and conducing follow-up activities. The contractor shall attend site visits in order to obtain, evaluate and document facility information and to assist EPA in identifying facilities that may be candidates for subsequent sampling activities. For purposes of preparing a cost estimate, the contractor shall assume that four (4) one-day site visits will be conducted to facilities across the U.S. during this work assignment period of performance. The contractor shall prepare draft and final site visit reports as indicated in the Task 5 Deliverables Table below. Site visit reports shall include detailed documentation of information obtained during the site visits.

5.2 Characterization Sampling

The contractor shall provide support to EPA in conducting wastewater characterization sampling activities at CWT facilities that accept oil and gas extraction wastewaters. The contractor shall

assist EPA in identifying candidate facilities for sampling. EPA anticipates that characterization sampling under Task 5.2 will consist primarily of one-time grab sampling for characterization purposes. These characterization samples will have the following purposes:

- Characterize untreated wastewater characteristics for wastewaters produced from oil and gas extraction operations that are received at CWT facilities
- Characterize treated effluent characteristics for determining facility effectiveness in removing target pollutants
- Characterize wastewater characteristics at intermediate treatment points to determine unit process effectiveness in removing target pollutants
- Characterize treatment residuals and discharges from other ancillary activities

Analytes to be evaluated during site visits are shown in Table 5-1.

Table 5-1. Analytes for Characterization Sampling

Group I Classicals
Total Suspended Solids (TSS)
Total Dissolved Solids (TDS)
Specific Conductance
Turbidity
pH
Alkalinity
Group II Classicals
Chemical Oxygen Demand (COD)
Total Organic Carbon (TOC)
Other Classicals
HEM/SGT-HEM
Biochemical Oxygen Demand (BOD5)
Cyanide (total)
Total Hardness
Anions
Bromide, chloride, fluoride, and sulfate
Total Metals
Aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, molybdenum, nickel, selenium, silver, sodium, thallium, tin, titanium, vanadium, and zinc
Mercury
Hexavalent Chromium
Total Uranium, Total Thorium
Organics
Diesel range and gasoline range organics
Volatile organic compounds
Semivolatile organic compounds
Radioactives
Total Radium (226, and 228)
Radon
Gross alpha/beta
Total Strontium
Alpha Spectroscopy (Uranium and Thorium isotopes and decay products

The final list of analytes and analytical methods shall be prepared in consultation with the EPA WAM.

For purposes of preparing a work plan, the contractor shall assume that four (4) one-day characterization sampling episodes shall be conducted during the period of performance of this work assignment. The contractor shall assume two contractors shall participate in characterization site visits and site visits shall take place in Pennsylvania, Texas, North Dakota, and Colorado. A total of four sample points are anticipated at each of the four locations to be sampled. Additional samples for quality assurance (such as duplicate and trip blank, field blank, matrix spike, etc.) samples shall also be collected, as specified in individual Sampling and Analysis Plans (SAPs) for each location.

The contractor shall provide all sampling equipment, materials (such as sampling bottles), supplies and consumables (such as ice) necessary to conduct the sampling, preserve samples and to package and ship the samples to laboratories. The contractor shall also be responsible for freight/shipment and tracking of samples to analytical laboratories and maintaining documentation (such as traffic reports).

Laboratory Services

The contractor shall provide technical support to EPA in acquiring laboratory services to analyze the samples for parameters of interest. In obtaining laboratory services, the contractor shall ensure that the laboratory(ies) demonstrates sufficient recent experience and qualifications and identify methods to be used for analyzing oil and gas wastewater samples (or samples with similar matrices) and that laboratory services comply with EPA's *Policy to Assure Competency of' Laboratories, Field Sampling, and Other Organizations Generating Environment Measurement Data under Agency-Funded Acquisitions (FEM-2011-01).* These wastewaters have unique characteristics and complex matrices. Total dissolved solids (TDS) concentrations in samples can exceed 120,000 mg/L according to available data. Laboratories shall also have experience in analyzing radionuclides expected to be present in these samples. These high levels of chlorides and other dissolved solids can pose significant challenges to laboratory analysts. As a result, the contractor shall consult with EPA regarding appropriate analytical methods and sample collection, handling, preparation and preservation and coordinate with laboratories in advance of sample collection in order to ensure that methods selected for analysis of samples and the laboratories obtained are capable of detecting parameters at the concentrations expected.

In addition, field analysis of parameters such as temperature, pH and conductivity may be required.

The contractor shall review available data that has been compiled by EPA regarding the expected level of these parameters in these wastewaters and consult with the EPA WAM regarding analytical methods and detection levels for the pollutants of interest. In addition, the contractor may recommend additional parameters based on review of existing data regarding these wastewater characteristics. Adjustments to analytes and methods must be reflected in the SAPs.

The contractor shall ensure that the laboratories report results in a similar manner for all episodes, including the reporting of results for metals that are below the report limit but above the method detection limit (e.g., J-values). The contractor shall consult with EPA regarding time frames for laboratories to submit analytical results prior to selection of laboratory services.

In addition, the contractor shall coordinate with laboratories to ensure timely and efficient analysis of the collected wastewater samples; perform data quality reviews and resolve issues that may arise from those reviews; and evaluate pollutant characteristics and treatment efficacy. The contractor shall prepare and maintain a Sample Tracking Report that shall include a summary of any problems identified and the status of efforts to resolve the problems. The contractor shall consult with the EPA WAM when any laboratory or data quality issues arise in order to address these issues in a timely fashion. The contractor shall compile the laboratory results in a format approved by EPA and as described in the laboratory competency policy.

The services to be performed under this task are strictly limited to those of a technical and scientific nature, encompassing the tasks of collecting samples, acquiring laboratory services, including tracking the location and status of collected samples throughout the entire analytical and data reporting process. The contractor shall also coordinate with laboratories to ensure timely and efficient analysis of the collected wastewater samples; resolve issues that may arise during sample analysis or during QA/QC reviews of laboratory results; and provide technical support to EPA regarding analytical methods, data review, quality assurance, and the effluent guidelines sampling program.

Documentation

Sampling Plans and Sampling Episode Reports

Each characterization sampling episode shall require the development of a site-specific sampling and analysis plan (SAP) and a site-specific health and safety (H&S) plan, if feasible. Draft and final SAPs shall be developed according to the schedule of deliverables table below. The SAPs shall provide detailed descriptions on the locations to be sampled, the parameters to be sampled, the sample collection and preservation techniques to be utilized, sample labeling and tracking protocols, and other information and protocols as necessary to assure the successful collection, handling, preservation, shipping and tracking of samples. The SAPs shall also contain detailed information on field parameters to be measured and collection of operational details regarding the facilities sampled (e.g., flow rates, etc.). The SAPs shall also include a discussion of the data review procedures used to assure the quality of the data collected.

For facilities where site visits have been conducted in advance of any characterization sampling, much of the facility-specific information (e.g., sampling locations, number of sample points, equipment needed, etc.) required to prepare SAPs and H&S plans will have been obtained in advance during site visits. EPA anticipates that for some facilities, characterization sampling may be conducted at the same time as site visits, and that the contractor or EPA will not have conducted a previous visit. In these cases, facility-specific information necessary to prepare SAPs and H&S plans will be obtained through discussions with facility personnel. In these cases, it may be preferable to prepare a generic SAPs and H&S plan that will facilitate collection of

samples. Specific details on SAPs and H&S plans shall be develop for each characterization sampling episode through consultation with the EPA WAM.

At the completion of each sampling episode, the contractor shall develop a draft sampling episode report (SER) that documents the sampling conducted and any deviations from the SAP. As sampling results are available, the contractor shall compile the data into data result tables for use in the final draft SERs.

Sample Tracking Report

The contractor shall create and maintain information files which contain the status of all samples collected, including sample collection date, date of sample receipt at the laboratory, date laboratory analytical data is received, status of data quality reviews, and projected timeframes for completing reviews of data. The report shall also identify any anticipated problems or difficulties that might result in scheduling delays. This information shall be provided monthly until all samples collected by EPA have been analyzed and the database of laboratory results is complete.

5.3. General Technical Support

If necessary, the contractor shall provide general technical support to EPA regarding analytical methods, data review, quality assurance and the effluent guidelines sampling program. During the period of performance, the contractor may have to respond to approximately 3-5 technical support inquiries. The following are activities the contractor may have to perform:

- Provide the EPA WAM with technical responses to analytical method and data inquiries;
- Research solutions to analytical problems;
- Conduct literature searches;
- Fill document requests;
- Provide the raw laboratory data and information related to data review; and
- Track the status and disposition of technical inquiries.

TASK 5 SCHEDULE OF DELIVERABLES

TASK	DELIVERABLE	DEADLINE
5.1	Draft Site Visit Report	14 Days after completion of site visit
	Final Site Visit Report	14 Days after receipt of comments from EPA
5.2	Draft SAPs and H&SP - facilities with prior site visit	21 days prior to sampling episode
	Final SAPs and H&SP - facilities with prior site visit	7 days after receiving EPA comments on the draft sampling plan. Final Sampling Plan Supplemental

		QAPPs must be approved by EPA prior to collection of any samples under Task 5.
	Draft Generic SAP and H&SP - facilities without prior site visit	21 days prior to sampling episode
	Final Generic SAP and H&SP - facilities without prior site visit	7 days after receiving EPA comments on the draft sampling plan
	Draft SER (without data)	14 days after completing the sampling episode
	Revised SER	7 days after receiving EPA comments
	Final SER (with data)	7 days after final QC data is available
	Database of laboratory analytical results	September 25, 2015

Task 6: Support for Questionnaire Development

The contractor shall provide support in developing industry questionnaires. Under a separate contact, EPA will develop and administer questionnaires to nine or fewer CWT facilities to collect technical and financial information. Under this work assignment, the contractor shall provide support in developing questions of a technical and engineering nature to be included in questionnaires to be sent to CWT facilities. These questions will be specific to areas such as facility size, waste acceptance, treatment technologies, flow rates, residuals management, etc. The contractor shall also provide other support for questionnaire development as specified through technical direction, such as selecting facilities for receiving questionnaires, contacting facilities to clarify technical and engineering responses, etc.

TASK 6: DELIVERABLES	**DEADLINES**
Draft Technical and engineering questions for questionnaires	November 14, 2014
Final Technical and engineering questions for questionnaires	14 Days after receiving EPA review comments
Other technical and engineering questionnaire support	As specified in technical direction

Task 7: Management of Confidential Business Information

During the course of the work assignment, the contractor shall be accessing and evaluating CBI. As such, the contractor shall adhere to EPA's CBI policy and procedures as described in the contract performance work statement, Section 3.0, for all tasks in this WA, as applicable. The contractor shall obtain CBI security clearance to use CBI information as outlined in Section 3.0 of Contract EP-C-12-021.The contractor shall utilize CBI information in accordance with contract requirements and limitations to include using its most recent "Security Plan for Handling Confidential Business Information under the Clean Water Act." The contractor shall also utilize CBI information in accordance with contract requirements and limitations, including the TSCA CBI security plan as required.

TASK 7 DELIVERABLES	**DEADLINES**
A CBI program in compliance with the requirements of contract EP-C-12-021 and the requirements of the contractor's CBI Plan.	Ongoing

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 2-54

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-12-021	09/26/2012 To 09/25/2015	CWT Study Technical Support
	Base Option Period Number 2	

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [X] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 09/26/2014 To 09/25/2015

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*): ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/26/2012 To 09/25/2015	$0.00	0
This Action:	$497,907.00	4,220
Total:	$497,907.00	4,220

Work Plan / Cost Estimate Approvals

	Cost/Fee:	LOE:
Contractor WP Dated: 10/23/2014	$497,907.00	4,220
Cumulative Approved:	$497,907.00	4,220

Work Assignment Manager Name: Jesse Pritts (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1038 FAX Number:
Project Officer Name: Meghan Hessenauer (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1040 FAX Number:
Other Agency Official Name: (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 2-55

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-12-021	09/26/2012 To 09/25/2015 Base Option Period Number 2	Petroleum Refining Study

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 10/16/2014 To 09/25/2015

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*): ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 09/26/2012 To 09/25/2015 — Cost/Fee: — LOE:

This Action:

Total:

Work Plan / Cost Estimate Approvals

Contractor WP Dated: — Cost/Fee: — LOE:

Cumulative Approved: — Cost/Fee: — LOE:

Work Assignment Manager Name: Samantha Lewis (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1058 FAX Number:
Project Officer Name: Meghan Hessenauer (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1040 FAX Number:
Other Agency Official Name: (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

Performance Work Statement
Contract EP-C-12-021
Work Assignment 2-55

Title: Petroleum Refining Detailed Study

Work Assignment Manager (WAM): Samantha Lewis
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Fax: 202-566-1053
E-Mail: lewis.samantha@epa.gov

Period of Performance (POP): October 16, 2014 through September 25, 2015

I- Purpose

The purpose of this work assignment is to support EPA's development of a study to evaluate the petroleum refining category.

II- Introduction

This work assignment supports EPA's development of a study of wastewaters from petroleum refining (PR) facilities.

EPA currently regulates discharges from the PR category pursuant to effluent limitations guidelines and standards (collectively referred to as ELGs) found at 40 CFR Part 419. A study of this category will help EPA determine if changes to the existing ELGs are needed. Recent changes to the industry may have resulted in new wastestreams or wastewater characteristics. EPA has observed an increase in metals discharges as well as an increase in the number of refineries reporting metals discharges. However, only one metal (chromium) was included in the current PR ELGs.

As part of the study, EPA plans to collect updated industry profile information to identify refineries that use catalytic reforming, process heavy crude; and have installed new air pollution control equipment that generates wastewater. Also EPA will identify pollutants of interest and associated wastewater treatment technologies for these pollutants. EPA will also use the study to identify additional data needs for this industry, including information on industry economics and

potential environmental impacts of current discharges. EPA may collect additional data through permit and permit application reviews, site visits, or other methods.

III- General Work Assignment Requirements (PWS Section 3.0)

Deliverable Formatting and Terminology

Throughout this work assignment, the contractor shall provide draft and final reports to EPA in electronic format, with hard copy format also provided when directed by the work assignment manager. The contractor shall discuss the computer file formats to be used for word processing, spreadsheet, database and graphics with the EPA WAM prior to file preparation. The EPA WAM will identify for the contractor which documents will be posted on EPA's Effluent Guidelines webpage. These documents posted to the Effluent Guidelines webpage must be Section 508 compliant.[1]

Travel

Non-local travel by the contractor employees and/or subcontractors will be required to support the scope of this work assignment (e.g., conducting site visits). The contractor shall provide specific travel details and costs in a request for travel approval by the EPA WAM and the EPA Project Officer (PO) before each trip occurs (as specified by the contract per clause H.32).

Event Expenses Not to Exceed $20,000

No single event under this Work Assignment is anticipated to exceed $20,000. The Contractor shall immediately notify the EPA Contracting Officer, PO and WAM of any anticipated event involving support for a meeting, conference, workshop, symposium, retreat, seminar or training that may potentially incur $20,000 or more in cost during performance. Conference expenses are all direct and indirect costs paid by the government and include any associated authorized travel and per diem expenses, room charges for official business, audiovisual use, light refreshments, registration fees, ground transportation and other expenses as defined by the Federal Travel Regulations. All outlays for conference preparation should be included, but the federal employee time for conference preparation should not be included. After notifying EPA of the potential to reach this threshold, the Contractor shall not proceed with the task(s) until authorized to do so by the Contracting Officer.

Confidential Business Information

The contractor shall, at all times, adhere to Confidential Business Information (CBI) procedures when handling industry information. The contractor shall manage all reports, documents, and other materials and all draft documents developed under this work assignment in accordance with the procedures set forth in the "Security Plan for Handling Confidential Business Information Under the Clean Water Act" (September 2002) or its successor approved plans.

[1] See http://www.epa.gov/epahome/accessibility.htm.

Identification as Contracting Staff

To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and visiting field sites. When speaking with the public the contractor should refer all interpretations of policy to the EPA WAM.

Limitation of Contractor Activities

The contractor shall submit drafts of all deliverables to the EPA WAM for review prior to submission of the final product. The contractor shall incorporate all EPA WAM comments into all final deliverables, unless otherwise agreed upon by the EPA WAM. The contractor will adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), PO, and WAM.

Deliverable Due Dates

For the purpose of developing this work plan, the contractor shall assume the deliverable due dates in the tables for each task presented further. Major technical deliverables shall be subject to internal contractor peer review by an expert(s) not directly involved in the mainstream Work Assignment tasks. Deliverables will be prepared with proper adherence to EPA style and format requirements.

IV- Tasks

Task 1: Program Management

The contractor shall prepare and submit a detailed work plan that outlines the approach and methodology that shall be used to perform the tasks identified in this Work Assignment. The work plan shall specify the work to be done for each task, and the allocation of personnel, hours and budget by task and deliverables. The work plan shall be submitted to the EPA PO/WAM in accordance with contract requirements.

This task also includes contract management such as communications between EPA Contracting Officer Representatives and their respective contractor counterparts. These communications would concern the progress made on the work assignment tasks and coordination of activities to facilitate optimal contractor performance.

The contractor shall provide electronic copies of the monthly progress reports to the WAM and PO. Each progress report shall describe the technical work and expenditures for the same time period as the corresponding invoice. The reports shall list by task the amount of work completed and include a table of hours by personnel for each task. The reports also shall identify any problems or difficulties. The contractor shall inform the EPA CO, PO and WAM in writing when 50%, 75%, and 90% of the allocated hours or dollars have been expended.

TASK 1 DELIVERABLES	DEADLINES
Work Plan	In accordance with contract requirements
Progress Reports	Monthly

Task 2: Technical Support for Preparation of Preliminary Data Summary of the Petroleum Refining Industry

The contractor shall provide technical support to EPA in preparing a preliminary data summary (or study) of the Petroleum Refining (PR) industry. The contractor shall use the report generated under Task 10 of WA 1-05 of this contract, Petroleum Refinery Preliminary Study as a starting point for the preliminary data summary. The primary focus of this study is to evaluate current and future trends in the PR industry to determine if changes to the existing ELGs are needed.

Recent changes to the industry may have resulted in new wastestreams or wastewater characteristics. EPA has observed an increase in metals discharges as well as an increase in the number of refineries reporting metals discharges. However, only one metal (chromium) was included in the current PR ELGs.

Specifically, the contractor will provide support to EPA in evaluating the following:

- Updated industry profile information to identify refineries that use catalytic reforming, process heavy crude; and have installed new air pollution control equipment that generates wastewater.
- Identification of pollutants of interest and associated wastewater treatment technologies for these pollutants.
- Identification of additional data needs for this industry, including information on industry economics and potential environmental impacts of current discharges.
- Collection of additional data through permit and permit application reviews, site visits, or other methods.

To obtain the necessary data for developing the study, EPA anticipates conducting site visits to a number of facilities (Task 5). EPA also anticipates using Clean Water Act § 308 authority to collect information and data from nine or fewer petroleum refining companies. The contractor shall assist EPA with the technical aspects of these activities, such as developing lists of questions and compiling information received.

Other potential data sources that the contractor may utilize in developing the study include technical and scientific literature, commercial data sources, vendors, internet searches, and state regulatory agencies. In addition, data collected under Task 5 is expected to be a primary source of information regarding wastewater characteristics and treatability.

The contractor shall also collect information related to economic aspects of the industry as well as environmental impacts associated with discharges from this industry. The cost and

performance information obtained by the contractor may be used as inputs for these analyses. The contractor shall therefore consult with EPA regarding use of data and information collected and generated in these corollary analyses.

The contractor shall maintain an index of all data, studies and information obtained and generated and shall deliver this index on a monthly basis.

The following sub-tasks describe the major components of the study.

2.1 Industry Profile

The contractor shall update the preliminary report on the Petroleum Refining industry generated under Task 10 of WA 1-05 of this contract, Petroleum Refinery Preliminary Study as needed. This profile shall continue to update existing information that characterizes the number, type, production, feedstock, air pollution control equipment, information on unit processes of interest (e.g. which facilities have catalytic reformers and the type), size and location of PR facilities. The profile may be supplemented with information obtained from facilities, state oil and gas permitting and wastewater permitting agencies, commercial databases and EPA's data collection activities, as well as other data sources identified by EPA and the contractor.

2.2 Wastewater Characterization

The contractor shall prepare a detailed description of PR wastewater characterization data, including key wastestreams and pollutants of interest. This shall summarize existing data that characterizes the pollutants present in these wastewater, including information from permit reviews, site visits and from information collection requests.

2.3 Pollution Prevention, Wastewater Reuse and Treatment

The contractor shall discuss current pollution prevention and treatment methods. The treatment technology database shall be used to identify additional treatment methods. A literature search, site visits, information from permit reviews and information collection requests shall also be used.

The following table contains the major deliverables and milestones under Task 2:

TASK	DELEVERABLE	DEADLINE
2.1	Outline of Updated Industry Profile Sections	April 10, 2015
	Updated Industry Profile - Draft	July 10, 2015
	Updated Industry Profile - Second Draft	September 4, 2015

2.2	Outline of Wastewater Characterization	March 27, 2015
	Wastewater Characterization - Draft	June 12, 2015
	Wastewater Characterization - Second Draft	August 14, 2015
	Wastewater Characterization - Update with available Task 5 data	September 18, 2015
2.3	Outline of Wastewater Management Practices	April 3, 2015
	Wastewater Management Practices - Draft	June 26, 2015
	Wastewater Management Practices - Second Draft	August 25, 2015

Task 3: Quality Assurance

EPA policy requires that an approved Quality Assurance Project Plan (QAPP) or Programmatic Quality Assurance Project Plan (PQAPP) be in place for work that involves the collection, generation, evaluation, analysis or use of primary environmental data. The QAPP or PQAPP defines and documents how specific data generation and collection activities shall be planned, implemented, and assessed during a particular project. This contract has an approved PQAPP for all necessary work envisioned under this work assignment.

Background

Quality Assurance Project Plans are required under the Agency's Quality Assurance Policy CIO-2105, formerly EPA Order 5360.1 A2 (May 2000), and implementing guidance CIO-2105-P-01-0 (May 2000). All projects that involve the generation, collection, analysis, and use of environmental data must have an approved Quality Assurance Project Plan (QAPP) in place prior to the commencement of the work. Examples of these environmental data operations are provided in **Table 3-1** below.

Table 3-1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data

Item	Examples
Data	Includes field sampling information (sample location information, flow measurements, temperature, pH, physical observations, etc.), laboratory measurements (e.g., chemical, physical, biological, radiological measurements), data collected from questionnaires, economic data, census data, and any other types of existing data (i.e., data generated for a different purpose or generated by a different organization)

Table 3-1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data

Item	Examples
Data generation	Includes field studies, laboratory studies, and generation of modeling output
Data collection	Includes field surveys, questionnaire surveys, literature searches, and third party data
Data evaluation	Includes data inspection, review, assessment, and validation
Data analysis	Includes statistical, engineering, and economic analysis, and testing, evaluation, and validation of methods and models; database creation, data extraction, and data manipulation
Data Use	Any use of data to support EPA decisions, regulations, policy, publications, or tools (including effluent guidelines, 304(m) program, standards, environmental assessments, and models, tools, or reports disseminated by EPA to assist other organizations in implementing environmental programs)

Note that QAPPs are required for the development or revision of models and software that support the generation, collection, evaluation, analysis, or use of data. (A model is set of equations and assumptions used to predict unknown data.) When existing models are used as a tool to generate or evaluate data, the project QAPP must describe the model and explain how it will be used and how its output will be evaluated to ensure the modeling effort meets the overall quality objectives for the project. Development or revision of new models also must be supported by a QAPP that describes the objectives for the model, the quality criteria that will be applied to the model, and the procedures for evaluating whether the model meets those criteria.

QA Project Plan Requirements

The Contractor has previously prepared a contract-wide Programmatic QAPP (PQAPP) for Contract EP-C-12-021. This PQAPP describes, in a single document, information that is not site or time-specific, but applies throughout the program (i.e., the duration of the contract). When tasked with preparing the PQAPP, the Contractor was informed that the PQAPP may need to be supplemented with project-specific details to support individual work assignments that involve the collection, generation, evaluation, analysis, or use of environmental data.

The activities in this work assignment involve gathering, evaluating, analyzing, and otherwise using existing environmental data (also known as "secondary" use of data). This work assignment also involves collection of new data, such as collection of data from companies through Clean Water Act (CWA) § 308 letters. EPA has determined that the Contractor is operating under the existing PQAPP and that the PQAPP addresses QA requirements for a this work assignment as related to existing data collection, as well as collection of new data through CWA § 308 letters. The applicable sections of the PQAPP are sections 4, 5, 7, 8, 9 and 10. In support of this work assignment, the Contractor shall ensure that the work plan provides enough detail to clearly describe:

- Specific objectives of the project(s) supported by this work assignment, including typical questions that must be answered when collecting and analyzing existing data to support the development of effluent guidelines industry studies, in this case, for Petroleum Refining industry.
- The type of data to be gathered or used under this work assignment to support the project objectives—including data from search engines, federal databases, EPA databases—as a well as a rationale for when those databases are appropriate and what data available in each will support the project
- The quality objectives needed to ensure the data will support the project objectives, and
- The QA/QC activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed.

Additional QA Documentation Required

The EPA Quality Manual for Environmental Programs (CIO 2105-P-01-0, May 2000) requires published Agency reports containing environmental data to be accompanied by a readily identifiable section or appendix that discusses the quality of the data and any limitations on the use of the data with respect to their originally intended application. The EPA Quality Manual further requires Agency reports to be reviewed by the QA manager (or other authorized official) before publication to ensure that an adequate discussion of QA and QC activities is included. The purpose of the review is to ensure the reports provide enough information to enable a knowledgeable reader to determine if the technical and quality goals were met for the intended use of the data. Reports should include applicable statements regarding the use of any environmental data presented as a caution about possible misuse of the data for other purposes. For example, a Technical Support Document or Study Report must include a clear discussion of the quality management strategies (including the project goals and objectives, quality objectives and criteria, and QA/QC practices) that were employed to control and document the quality of data generated and used. These documents should also discuss any deviations from procedures documented in the EPA-approved QAPP(s) supporting the project, the reasons for those deviations, any impact of those deviations had on data quality, and steps taken to mitigate data quality issues.

In support of this Agency requirement, all major deliverables (e.g., Reports) produced by the Contractor under this work assignment must include a discussion of the QA/QC activities that were performed to support the deliverable, and this discussion must provide a sufficient level of detail to allow the EAD QA Coordinator (or designee) to determine if the QA/QC strategies implemented for the project sufficiently support the intended use of the data. Upon receipt, the EPA WAM will review each applicable report and certify whether the Contractor has adhered to the QA requirements documented in the Contractor's PQAPP.

The Contractor also shall provide EPA with monthly reports of QA activities performed during implementation of this work assignment. These monthly QA reports shall identify QA activities performed to support implementation of this work assignment, problems encountered, deviations from the QAPP, and corrective actions taken. If desired, the Contractor may include this as a part of the contract-required monthly financial/technical progress report.

TASK 3 DELIVERABLES	DEADLINES
Monthly reports of QA work performed (may be included in the Contractor's monthly progress report)	Monthly

Task 4: General Technical Support

Using information provided by the WAM, along with information gathered or developed by the contractor, the contractor shall assemble information, create and/or modify documents and perform analyses related to petroleum refining facilities as directed by the WAM through written technical direction. The tasks may include work such as:

- Summarizing data to brief management
- Collecting and analyzing secondary data
- Attending meetings or preparing materials and participating in meetings, conferences and workshops to support EPA's outreach activities to the public and industry (these materials may include reports, brochures, maps, or other presentation materials)
- Attending petroleum refining industry technical meetings and/or conferences as directed by EPA
- Contacting state agencies to collect information about petroleum refining operations, wastewater discharges and wastewater treatment.

For purposes of preparing a work plan, the contractor shall assume that there shall be approximately ten written technical directives requiring quick turn-around and the contractor will be asked to attend two conferences.

TASK 4: DELIVERABLES	DEADLINES
General technical support (as above)	2 days after receiving technical direction, or as specified in technical direction, from the WAM

Task 5: Site Visits

The contractor shall provide support to EPA in conducting site visits at petroleum refining facilities. Support shall include identifying candidate facilities, scheduling conference calls with facility personnel to obtain detailed facility information and to schedule visits, obtaining operational information from facilities (treatment technologies in place, crude oil types processed, air pollution control, facility size and flow rates, existing monitoring data, etc.), drafting site visit reports and conducing follow-up activities. The contractor shall attend site visits in order to obtain, evaluate and document facility information and to assist EPA in identifying facilities that may be candidates for subsequent sampling activities. For purposes of preparing a cost estimate, the contractor shall assume that six (6) one-day site visits (three trips with two visits in each trip) will be conducted to facilities across the U.S. during this work assignment period of performance. The contractor shall prepare draft and final site visit reports

as indicated in the Task 5 Deliverables Table below. Site visit reports shall include detailed documentation of information obtained during the site visits.

TASK 5 SCHEDULE OF DELIVERABLES

TASK	DELIVERABLE	DEADLINE
5	Draft Site Visit Report	14 Days after completion of site visit
	Final Site Visit Report	14 Days after receipt of comments from EPA

Task 6: Management of Confidential Business Information

During the course of the work assignment, the contractor shall be accessing and evaluating CBI. As such, the contractor shall adhere to EPA's CBI policy and procedures as described in the contract performance work statement, Section 3.0, for all tasks in this WA, as applicable. The contractor shall obtain CBI security clearance to use CBI information as outlined in Section 3.0 of Contract EP-C-12-021.The contractor shall utilize CBI information in accordance with contract requirements and limitations to include using its most recent "Security Plan for Handling Confidential Business Information under the Clean Water Act." The contractor shall also utilize CBI information in accordance with contract requirements and limitations, including the TSCA CBI security plan as required.

TASK 6 DELIVERABLES	DEADLINES
A CBI program in compliance with the requirements of contract EP-C-12-021 and the requirements of the contractor's CBI Plan.	Ongoing

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 2-55

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-12-021	09/26/2012 To 09/25/2015 Base Option Period Number 2	Petroleum Refining Study

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [X] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 10/16/2014 To 09/25/2015

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*): ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Contract Period	Cost/Fee	LOE
	09/26/2012 To 09/25/2015	$0.00	0
This Action:		$252,006.00	2,500
Total:		$252,006.00	2,500

Work Plan / Cost Estimate Approvals

		Cost/Fee	LOE
Contractor WP Dated:	11/11/2014	$252,006.00	2,500
Cumulative Approved:		$252,006.00	2,500

Work Assignment Manager Name: Samantha Lewis	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1058 FAX Number:
Project Officer Name: Meghan Hessenauer	(Signature)	(Date)	Branch/Mail Code: Phone Number: 202-566-1040 FAX Number:
Other Agency Official Name	(Signature)	(Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath	(Signature)	(Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 2-56

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-12-021	09/26/2012 To 09/25/2015	Oil & Gas Industry Support
	Base Option Period Number 2	

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 12/05/2014 To 09/25/2015

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*): ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

Contract Period: 09/26/2012 To 09/25/2015 — Cost/Fee: — LOE:

This Action:

Total:

Work Plan / Cost Estimate Approvals

Contractor WP Dated: — Cost/Fee: — LOE:

Cumulative Approved: — Cost/Fee: — LOE:

Work Assignment Manager Name: Kyle Carey (Signature) (Date)	Branch/Mail Code: Phone Number: 202-564-2322 FAX Number:
Project Officer Name: Meghan Hessenauer (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1040 FAX Number:
Other Agency Official Name (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

PERFORMANCE WORK STATEMENT
CONTRACT EP-C-12-021
WORK ASSIGNMENT 2-56

Title: Oil & Gas Industry Protective Practices Support and Development

Work Assignment Manager (WAM): Kyle Carey
Phone: 202-564-2322
E-mail: carey.kyle@epa.gov

Period of Performance (POP): December 5, 2014 through September 25, 2015

Purpose

The scope of this effort includes the services necessary to research, write, edit and produce documents related to unconventional oil and gas protective practices and verification methods and assist with an EPA-hosted verification forum in spring 2015.
Specifically, the scope of services required should include:

- Project Management
- Quality Assurance
- Research, Writing and Editing Capabilities
- Graphic Design
- Event Planning and Execution

Introduction

The EPA is working on a number of efforts to help ensure the protection of water resources and effective management of wastes from activities associated with oil and natural gas exploration and production. As the unconventional oil and natural gas exploration and production is expected to expand, EPA is working with states and others to ensure responsible development of these resources.

This work assignment supports the development of specific work products, including various documents and a public forum. Specifically, the EPA has identified the following work products to date: (1) the development of a narrative that describes an array of protective practices for unconventional oil and natural gas exploration and production operations, (2) the development of a narrative that describes verification methods for ensuring protective practices are implemented successfully, and (3) the announcement, development, planning and execution of a multi-stakeholder verification forum.

General Work Assignment Requirements (PWS Section 3.0)

Deliverable Formatting and Terminology

Throughout this work assignment, the contractor shall provide draft and final reports to the EPA in electronic format, with hard copy format also provided when directed by the work assignment manager. The contractor shall discuss the computer file formats to be used for word processing,

spreadsheet, database and graphics with the EPA WAM prior to file preparation. The EPA WAM will identify for the contractor which documents will be posted on the Agency's webpage. Documents posted to the EPA webpage must be Section 508 compliant.[1]

Travel

Non-local travel by the contractor employees and/or subcontractors will be required to support the scope of this work assignment (e.g., conducting site visits). The contractor shall provide specific travel details and costs in a request for travel approval by the EPA WAM and the EPA Project Officer (PO) before each trip occurs (as specified by the contract per clause H.32).

Event Expenses Not to Exceed $20,000

No single event under this Work Assignment is anticipated to exceed $20,000. The Contractor shall immediately notify the EPA Contracting Officer, PO and WAM of any anticipated event involving support for a meeting, conference, workshop, symposium, retreat, seminar or training that may potentially incur $20,000 or more in cost during performance. Conference expenses are all direct and indirect costs paid by the government and include any associated authorized travel and per diem expenses, room charges for official business, audiovisual use, light refreshments, registration fees, ground transportation and other expenses as defined by the Federal Travel Regulations. All outlays for conference preparation should be included, but the federal employee time for conference preparation should not be included. After notifying EPA of the potential to reach this threshold, the Contractor shall not proceed with the task(s) until authorized to do so by the Contracting Officer.

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Limitation of Contractor Activities

The contractor shall submit drafts of all deliverables to the EPA WAM for review prior to submission of the final product. The contractor shall incorporate all EPA WAM comments into all final deliverables, unless otherwise agreed upon by the EPA WAM. The contractor will adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), PO, and WAM.

Deliverable Due Dates

For the purpose of developing this work plan, the contractor shall assume the deliverable due dates in the tables for each task presented further. Major technical deliverables shall be subject to

[1] See http://www.epa.gov/epahome/accessibility.htm.

internal contractor peer review by an expert(s) not directly involved in the mainstream Work Assignment tasks. Deliverables will be prepared with proper adherence to EPA style and format requirements.

Personnel

The Contractor is responsible for providing personnel with the necessary level of expertise to support the task activities and requirements in this SOW. The contractor shall provide a single point of contact that shall serve as the project manager for the life of the task.

Quality Assurance and Monitoring of Work Deliverables

All work under this contract shall be monitored by the PO/WAM, who will act as the primary technical representative of the Government. Final inspection and acceptance of all work performed, reports and other deliverables shall be performed at the place of delivery by the PO/WAM.

The PO/WAM, with the assistance of the other affected Project Managers, is responsible for:

- Setting task priorities, revising task priorities when necessary;
- Communicating these priorities to the contractor;
- After consultation with the Contracting Officer when appropriate, modifying delivery dates and schedules, so that the revised priorities can be met, and
- Formally assessing the level of contractor performance and ascribing the extent to which quality assurance and acceptable performance levels have been met

General Acceptance Criteria

General quality measures as set forth below shall be applied to each work product received from the contractor under this statement of work:

- Accuracy - Work Products shall be accurate in presentation, technical content, and adherence to accepted elements of style.
- Clarity - Work Products shall be clear and concise. Any/All diagrams shall be easy to understand and be relevant to the supporting narrative.
- Consistency to Requirements - All work products must satisfy the requirements of this statement of work.
- File Editing - All text and diagrammatic files shall be editable by the Government.
- Format - Work Products shall be submitted in hard copy (where applicable) and in media mutually agreed upon prior to submission.
- Timeliness - Work Products shall be submitted on or before the due date specified in this statement of work or as described in assigned tasks or submitted in accordance with a later scheduled date determined by or approved by the Government.

Government Furnished Information

The contractor shall be furnished current task working papers, project descriptions, program briefing material and other pertinent information, and other documentation or material required to carry out the tasks described hereunder.

Task 1: Program Management

The contractor shall prepare and submit a detailed work plan that outlines the approach and methodology that shall be used to perform the tasks identified in this Work Assignment. The work plan shall specify the work to be done for each task, and the allocation of personnel, hours and budget by task and deliverables. The work plan shall be submitted to the EPA PO/WAM in accordance with contract requirements.

This task also includes contract management such as communications between EPA Contracting Officer Representatives and their respective contractor counterparts. These communications would concern the progress made on the work assignment tasks and coordination of activities to facilitate optimal contractor performance.

The contractor shall provide electronic copies of the monthly progress reports to the WAM and PO. Each progress report shall describe the technical work and expenditures for the same time period as the corresponding invoice. The reports shall list by task the amount of work completed and include a table of hours by personnel for each task. The reports also shall identify any problems or difficulties. The contractor shall inform the EPA CO, PO and WAM in writing when 50%, 75%, and 90% of the allocated hours or dollars have been expended.

TASK 1 DELIVERABLES	DEADLINES
Work Plan	In accordance with contract requirements
Progress Reports	Monthly

Task 2: Technical, Logistical, and Production Support for Protective Practices and Verification Methods Narratives

The contractor shall provide technical, logistical and production support for the creation of documents related to unconventional oil and gas protective practices and verification methods. The EPA will furnish the contractor materials as a starting point.

Specifically, with input from the EPA, the contractor will:

- Independently research existing protective practices and verification methods used by states and the oil and natural gas industry
- Review, edit, and incorporate additions/revisions into the protective practices and verification methods narratives based on research findings and produce final documents for public distribution in accordance with EPA requirements
- Compile research findings and other relevant information into presentation and communications materials including, but not limited to: power point slides, tables, graphs, info-graphics, and web-ready text
- Assist in the announcement, development, planning, promotion, and execution of a multi-stakeholder verification forum to take place in May 2015

The contractor must be able to attend multiple meetings per week with EPA technical staff and, as needed, with external stakeholders either in-person or via conference call. The contractor must also be available to attend ad hoc meetings either in-person or via conference call with minimal notice. The contractor must possess webinar capacity for the presentation of findings, materials, and other relevant information to the EPA technical staff and external stakeholders during meetings. In addition, the contractor must have the ability to adhere to strict deadlines and produce deliverables in response to fast turn-around direction.

The following sub-tasks describe the major components of the study.

2.1 Protective Practice and Verification Methods Research

The contractor will independently research and review existing guidance, regulations, manuals, peer-reviewed studies, websites, and additional documents to identify and capture protective practices prescribed and/or recommended by state agencies and industry leaders for safe and efficient oil and natural gas exploration and development. Information gathered during the performance of this task will be organized and presented in a way that allows it to be easily assessed by the EPA technical staff and that supports its inclusion in the revised, draft final, and final narratives completed under task 2.2.

2.2 Revised and Final Narratives

Based on the research performed under task 2.1, the contractor will review and edit the existing protective practices and verification methods narratives to incorporate the findings and information. In addition, the contractor may be required to review the narrative documents in response to EPA technical staff consideration of the information collected under task 2.1 and data from other sources (e.g., stakeholder discussions, verification forum discussions, etc.). Prior to and following the verification forum, the contractor will, at EPA's instruction, modify the protective practices and verification methods narratives based on stakeholder feedback. The contractor will provide both draft, draft final, and final versions of the narratives for EPA technical staff review with the inclusion of full citations and references.

2.3 Presentation Materials

The contractor will assemble pertinent data collected under task 2.1 and a summary of the narratives covered in task 2.2 into presentation materials able to be delivered to EPA technical staff and management and external stakeholders. Materials will also be assembled for the purposes of use by EPA technical staff and management for internal and external briefings and communications. Presentation and communications materials may include, but are not limited to: power point slides, tables, graphs, info-graphics, and web-ready text.

2.4 Verification Abstract and Verification Methods Forum

As part of the planning process, the contractor will develop a verification abstract and call for papers for the May 2015 verification forum. The verification abstract and call for papers will be disseminated to and/or accessed by the stakeholder community.

A multi-stakeholder verification forum consisting of approximately 30 – 50 participants will be organized to serve as an avenue for the EPA to communicate the information contained in the

draft verification methods narrative and to gain input on the topic from participants. The contractor will assist in the planning, promotion, and execution of the forum. Duties will include, but are not limited to: organizing and inviting participants and panelists, qualifying experts for panels, participant registration, technical paper organization, forum space reservation, communications technology, conference support materials, note-taking, and forum communications. During the forum, the contractor will provide note-taking services, a summary report of such notes, and at the direction of the WAM updates to documents produced under Task 2.

The contractor will prepare and submit draft and final copies of all deliverables, analysis, evaluation, review, and report products necessary to meet the requirements of technical tasks and activities performed in the provision of this Statement of Work. All written deliverable products must be delivered in electronic draft format for Government review and comment. Final copies must be delivered in three (3) working days after receipt of government comments.

The following table contains the major deliverables and milestones under Task 2:

TASK	DELEVERABLE	DEADLINE
2.1	Initial summary of research findings and discussion with EPA technical staff	January 7, 2015
	Second summary of research findings and discussion with EPA technical staff	January 14, 2015
2.2	Protective Practices Narrative (1st draft)	January 14, 2015
	Protective Practices Narrative (2nd draft)	January 23, 2015
	Protective Practices Narrative (draft final)	February 4, 2015
	Protective Practices Narrative (Final)	Anticipated Fall 2015
	Verification Methods Narrative (1st draft)	February 18, 2015
	Verification Methods Narrative (2nd draft)	March 4, 2015
	Verification Methods Narrative (draft final)	March 11, 2015
	Verification Methods Narrative (Final)	Anticipated Fall 2015
2.3	Presentation and communications materials	as directed by the WAM
2.4	Verification forum abstract (draft – internal)	January 7, 2015
	Verification forum abstract (final – external)	February 4, 2015
	Forum notes summary report	As directed by the WAM

Task 3: Quality Assurance

EPA policy requires that an approved Quality Assurance Project Plan (QAPP) or Programmatic Quality Assurance Project Plan (PQAPP) be in place for work that involves the collection, generation, evaluation, analysis or use of primary environmental data. The QAPP or PQAPP defines and documents how specific data generation and collection activities shall be planned, implemented, and assessed during a particular project. This contract has an approved PQAPP for all necessary work envisioned under this work assignment.

Background

Quality Assurance Project Plans are required under the Agency's Quality Assurance Policy CIO-2105, formerly EPA Order 5360.1 A2 (May 2000), and implementing guidance CIO-2105-P-01-0 (May 2000). All projects that involve the generation, collection, analysis, and use of environmental data must have an approved Quality Assurance Project Plan (QAPP) in place prior to the commencement of the work. Examples of these environmental data operations are provided in **Table 3-1** below.

Table 3-1. Examples of work that involves the collection, generation, evaluation, analysis, or use of environmental data

Item	Examples
Data collection	Includes literature searches and third party data
Data evaluation	Includes data inspection, review, assessment, and validation
Data analysis	Includes statistical, engineering, and economic analysis, and testing, evaluation, and validation of methods and models; database creation, data extraction, and data manipulation
Data Use	Any use of data to support EPA decisions, regulations, policy, publications, or tools

Note that QAPPs are required for the development or revision of models and software that support the generation, collection, evaluation, analysis, or use of data. (A model is set of equations and assumptions used to predict unknown data.) When existing models are used as a tool to generate or evaluate data, the project QAPP must describe the model and explain how it will be used and how its output will be evaluated to ensure the modeling effort meets the overall quality objectives for the project. Development or revision of new models also must be supported by a QAPP that describes the objectives for the model, the quality criteria that will be applied to the model, and the procedures for evaluating whether the model meets those criteria.

QA Project Plan Requirements

The Contractor has previously prepared a contract-wide Programmatic QAPP (PQAPP) for Contract EP-C-12-021. This PQAPP describes, in a single document, information that is not site or time-specific, but applies throughout the program (i.e., the duration of the contract). When tasked with preparing the PQAPP, the Contractor was informed that the PQAPP may need to be supplemented with project-specific details to support individual work assignments that involve the collection, generation, evaluation, analysis, or use of environmental data.

The activities in this work assignment involve gathering, evaluating, summarizing, and otherwise using existing environmental data (also known as "secondary" use of data) and the planning, promotion, and execution of an external stakeholder forum. The EPA has determined that the Contractor must supplement the PQAPP with an additional QAPP in order to address the QA requirements for this work assignment.
In support of this work assignment, the Contractor shall ensure that the work plan provides enough detail to clearly describe:

- Specific objectives of the project(s) supported by this work assignment
- The type of data to be gathered or used under this work assignment to support the project objectives—including data from search engines, federal databases, EPA databases—as a well as a rationale for when those databases are appropriate and what data available in each will support the project
- The quality objectives needed to ensure the data will support the project objectives, and
- The QA/QC activities to be performed to ensure that any results obtained from research are documented and are of the type, quality, transparency, and reproducibility needed.
- The preparation of the Information Quality Guidelines Checklist for all published deliverables

Additional QA Documentation Required

The EPA Quality Manual for Environmental Programs (CIO 2105-P-01-0, May 2000) requires published Agency reports containing environmental data to be accompanied by a readily identifiable section or appendix that discusses the quality of the data and any limitations on the use of the data with respect to their originally intended application. The EPA Quality Manual further requires Agency reports to be reviewed by the QA manager (or other authorized official) before publication to ensure that an adequate discussion of QA and QC activities is included. The purpose of the review is to ensure the reports provide enough information to enable a knowledgeable reader to determine if the technical and quality goals were met for the intended use of the data. Reports should include applicable statements regarding the use of any environmental data presented as a caution about possible misuse of the data for other purposes. For example, a Technical Support Document or Study Report must include a clear discussion of the quality management strategies (including the project goals and objectives, quality objectives and criteria, and QA/QC practices) that were employed to control and document the quality of data generated and used. These documents should also discuss any deviations from procedures documented in the EPA-approved QAPP(s) supporting the project, the reasons for those deviations, any impact of those deviations had on data quality, and steps taken to mitigate data quality issues.

In support of this Agency requirement, all major deliverables (e.g., Reports) produced by the Contractor under this work assignment must include a discussion of the QA/QC activities that were performed to support the deliverable, and this discussion must provide a sufficient level of detail to allow the EAD QA Coordinator (or designee) to determine if the QA/QC strategies implemented for the project sufficiently support the intended use of the data. Upon receipt, the EPA WAM will review each applicable report and certify whether the Contractor has adhered to the QA requirements documented in the Contractor's PQAPP.

The Contractor also shall provide EPA with monthly reports of QA activities performed during implementation of this work assignment. These monthly QA reports shall identify QA activities performed to support implementation of this work assignment, problems encountered, deviations

from the QAPP, and corrective actions taken. If desired, the Contractor may include this as a part of the contract-required monthly financial/technical progress report.

TASK 3 DELIVERABLES	**DEADLINES**
Supplemental Quality Assurance Project Plan	In accordance with contract requirements
Monthly reports of QA work performed (may be included in the Contractor's monthly progress report)	Monthly

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 2-56

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-12-021	09/26/2012 To 09/25/2015	Oil & Gas Industry Support
	Base Option Period Number 2	

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [X] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 12/05/2014 To 09/25/2015

Comments:
This Work Plan Approval incorporates a funding ceiling of $100,000.00. The contractor shall not exceed this funding ceiling without written authorization from the Contracting Officer.

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*) ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/26/2012 To 09/25/2015	$0.00	0
This Action:	$102,861.00	930
Total:	$102,861.00	930

Work Plan / Cost Estimate Approvals

	Cost/Fee:	LOE:
Contractor WP Dated: 12/23/2014	$102,861.00	930
Cumulative Approved:	$102,861.00	930

Work Assignment Manager Name: Kyle Carey (Signature) (Date)	Branch/Mail Code: Phone Number: 202-564-2322 FAX Number:
Project Officer Name: Meghan Hessenauer (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1040 FAX Number:
Other Agency Official Name: (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 2-57

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-12-021	09/26/2012 To 09/25/2015	Coastal Watershed Synthesis
	Base Option Period Number 2	

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: 4.0

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 05/28/2015 To 09/25/2015

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*): ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
2										
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5										

Authorized Work Assignment Ceiling

	Contract Period:	Cost/Fee:	LOE:
	09/26/2012 To 09/25/2015		
This Action:			
Total:			

Work Plan / Cost Estimate Approvals

Contractor WP Dated:	Cost/Fee:	LOE:
Cumulative Approved:	Cost/Fee:	LOE:

Work Assignment Manager Name: Karen Simpson (Signature) (Date)	Branch/Mail Code: Phone Number: 617-918-1672 FAX Number:
Project Officer Name: Meghan Hessenauer (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1040 FAX Number:
Other Agency Official Name: (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

PERFORMANCE WORK STATEMENT
CONTRACT EP-C-12-021
WORK ASSIGNMENT 2-57

TITLE: Southeast New England Coastal Watershed Synthesis Prioritization Support

WORK ASSIGNMENT MANAGER (WAM):

Karen Simpson
US EPA Region 1 New England
5 Post Office Square, Suite 100
Boston MA 02109
Phone: 617-918-1672
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PERIOD OF PERFORMANCE: May 28, 2015 through September 25, 2015

BACKGROUND

Excess nitrogen (N) and/or phosphorus (P) in waterways is a critical problem in the United States and around the world. Excess nutrients cause overgrowth of algae, leading to harmful algal blooms, hypoxia, drinking water contamination, and subsequent productivity and economic losses. For coastal systems in particular, nutrients are an increasingly dominant stressor.

In an effort to catalyze fresh solutions, policy innovations, and technological advances for addressing nutrient pollution in coastal watersheds, EPA in partnership with other organizations has launched the Southeast New England Coastal Watershed Restoration Program (SNECWRP). This new geographic program includes the watersheds of the Narragansett Bay and Buzzards Bay NEPs as well as southern Cape Cod, and Block Island, Martha's Vineyard, and Nantucket. SNECWRP's primary goals are to protect and restore ecosystem function at a regional scale, foster ecological and human resilience, and promote innovative environmental policy and technology.

Although many federal, state, local, and non-governmental entities are currently engaged in these areas, SNECWRP offers a significant opportunity to undertake coordinated and collaborative restoration planning on a regional, ecosystem scale. As part of this planning process, there is a need for a unifying set of objectives and priorities. Many if not most of these may already be expressed in the myriad planning and prioritization reports produced within the SNECWRP region. To aid in coordination and the development of program priorities for nutrient interventions, EPA will help to organize and convene a forum for SNECWRP stakeholders and participants to identify sources of existing priorities, discuss overlaps and gaps, and recommend a suite of shared priorities for restoration and protection; discussion will focus in particular on integrated approaches for managing nutrients as the driving stressor now and under future climate change scenarios.

PURPOSE OF THE SNECWRP FORUM

The SNECWRP geographic region is rich in state, NGO, and federal planning efforts, including two National Estuary Programs (NEPs) whose charge includes developing and implementing comprehensive conservation and management plans (CCMPs). However, each of these entities has limited responsibility and jurisdiction. No one body is charged with considering broad ecological needs across the Southeast New England coastal region as a whole, or has the tools to adequately address the full range of coastal issues in this region. In order to coordinate these efforts, EPA will:

1) synthesize and analyze existing priorities for the SNECWRP coastal region with the goal of identifying shared concerns and planning steps;
2) summarize progress, gaps, and opportunities in science, technology, and community- and market-based solutions for nutrient management; and
3) organize a forum to engage stakeholders in visioning an overall planning framework and action agenda that builds on and complements existing planning and implementation capacities, and identifies a suite of shared priorities for the SNECWRP region over a planning horizon to be determined

An outcome will be more effective coordination among the numerous entities working to restore coastal watersheds, more efficient allocation of disparate funding sources, engagement of the technology and business communities, and targeted restoration projects that address regionally significant priorities. An additional outcome will be more integrated federal engagement in nutrient pollution solutions.

Outside experts will be invited as necessary to provide additional information and to support and facilitate the discussion.

The one-day meeting will be held in the SNECWRP geographic area and will include members of the SNECWRP working group, experts, and additional stakeholders identified in the course of summarizing existing products, plus facilitators, with an emphasis on novel expertise and interest across the spectrum of technological and social challenge opportunities. Federal and state agencies will be engaged to contribute technical expertise and facilities support.

SCOPE OF WORK

The Contractor shall work with EPA to undertake the synthesis, review, and analysis of current priorities expressed throughout the SNECWRP region, and to plan and execute the forum. Specifically, the Contractor shall work with EPA to scope out the universe of materials and stakeholders to be consulted in developing the synthesis, prepare a draft and final analysis/report, develop an agenda for the forum, assist with facilitating and capturing discussion among participants, and manage forum logistics and follow-up. Follow-up will include summary notes from forum discussions, including recommendations and next steps.

TASKS

1. Task 1- Program Management

The Contractor shall develop a work plan describing the necessary steps and estimated hours to complete each of the tasks included in this work assignment. The work plan shall also include a list of the key personnel to participate in the work assignment. Additionally, the Contractor shall provide an estimate of all direct costs (i.e. computer costs, transcription, etc.) that are anticipated under this work assignment.

The Contractor shall prepare and deliver monthly progress reports to the Work Assignment Manager, Technical Lead, and Project Officer. These reports shall list, by task, the amount of work completed, and should include a table of hours by personnel for each task. The contractor shall inform the WAM, Technical Lead, and PO in writing when 50%, 75%, and 90% of the allocated hours and dollars have been expended.

TASK 1. – DELIVERABLES	Due Date
Work Plan	In accordance with contract requirements
Progress Reports	Monthly

2. Task 2 – Planning Review, Synthesis, and Analysis:

a. In consultation with the WAM and Technical Lead, the Contractor shall compile and review initial information taken from state, local, NGO, and other sources; these sources may include documents, public policy statements, monitoring strategies, budget analyses, and websites in place throughout the SNECWRP geographic region regarding current water quality, habitat, ecosystem function, community resilience, and other issues of concern.
b. Based on the initial review, at the direction of the WAM and Technical Lead, the Contractor may conduct interviews with targeted stakeholders and information holders to clarify or supplement information from written sources.
c. Based on the results of the review, the Contractor shall prepare a draft and final report analyzing overlaps, gaps, goals, and common issues in Rhode Island and Massachusetts and suggesting priority areas for discussion and action by SNECWRP participants. Based on comments provided by the WAM and Technical Lead, the final report shall include a summary and annotated bibliography of sources consulted, especially findings related to emerging and cost-effective approaches for managing nutrients on an ecosystem basis, inter-related roles of habitat and water quality, promotion of green infrastructure and watershed connectivity, and measures to ensure ecosystem resilience. The Contractor shall also summarize social and economic factors that may hinder or promote adoption of these approaches.
d. The Contractor shall prepare materials and documentation from the final report to present findings in a SNECWRP-sponsored forum to identify areas where SNECWRP can facilitate consensus and next steps for shared priorities, including identifying any analyses needed to follow up from the forum in areas such as common standards for infrastructure siting, healthy watershed maintenance,

monitoring approaches, etc.

e. Based on data identified in comprehensive review (above), develop series of GIS maps to help better visualize and understand key connectivity features to be addressed in maintaining or restoring the region's ecological resilience; the Contractor will provide files and data needed to produce SNECWRP GIS layers.

TASK 2. – DELIVERABLES	Due Date
Draft synthesis report of information taken from state, local, NGO, and other sources	Eight weeks after work assignment begins.
Final report with recommendations	11 weeks after work assignment begins
Forum presentation materials	14 weeks after work assignment begins
Progress Reports	Monthly

3. Task 3 – SNECWRP Forum

The Contractor, with input from the WAM and technical lead, shall handle logistics for the forum, including securing the location, arranging travel and accommodation for any invited experts in a manner that is consistent with federal travel guidelines, preparing and securing and distributing materials in advance of the meeting, and serving as note-taker in general and breakout sessions. The Contractor shall also serve as a facilitating participant in the forum. In addition, during the forum the Contractor shall provide general logistical support, including but not limited to:

- Conference room setup and breakdown, including preparing for IT or other technology needs and presentation needs
- Check-in table staffing and name tag/table tent distribution
- Escorting guests to and from security entrances if necessary
- Managing lunch and morning and afternoon snacks
- Collecting flip chart notes and any other items used to facilitate discussions
- Other tasks as identified in consultation from the WAM and technical lead

TASK 3. – DELIVERABLES	Due Date
Forum organization, logistics, and participation	TBD NTE FY15
Progress Reports	Weekly conference calls once prep begins

4. Task 4 – Post-Meeting

The Contractor shall work with the WAM and technical lead to assist with follow up actions from the forum. Specific responsibilities will include:

Delivering raw notes, flip charts, and other materials from the forum, preparing a draft summary report with key recommendations and priorities, and submitting a final forum

report, including any materials presented as part of the forum. These may need to be formatted for posting on the SNECWRP website.

QUALITY ASSURANCE

In order to ensure the quality of data collected under this statement of work, the Contractor shall adhere to the following quality assurance guidelines:

Selection of subject matter experts for meeting participation: Subject matter experts (if any) selected for participation in the forum should have significant professional and/or research experience in one of the following fields; nutrient pollution, innovations in septic system technologies, ecosystem function and resilience; watershed science; market-based incentives; habitat restoration, especially coastal habitats; climate change; natural green infrastructure; groundwater hydrology; environmental engineering; social sciences (including anthropology and economics); integrated water resource management; or any other field identified by the WAM and technical lead.

DELIVERABLES AND SCHEDULE

0. **Workplan:** this document, not to exceed five (5) pages, shall describe the expected steps and estimated hours needed to complete each of the tasks outlined in this work assignment. The work plan shall also include a list of the key personnel that are expected to participate in each task. The final workplan will be due in accordance with contract requirements.

1. **Expert participant list:** a master list of all external experts who have been chosen for participation in the forum. Recommended experts will be developed in consultation with the WAM and technical lead and a final invitation list provided three weeks in advance of the meeting.

2. **Review summary, analysis, and draft and final reports, including annotated list of consulted sources, GIS maps, and GIS files:** draft and final reports analyzing overlaps, gaps, goals, and common issues in Rhode Island and Massachusetts and suggesting priority areas for discussion and action by SNECWRP participants. The final report shall include a summary and annotated bibliography of sources consulted, especially findings related to emerging and cost-effective approaches for managing nutrients on an ecosystem basis, inter-related roles of habitat and water quality, promotion of green infrastructure and watershed connectivity, and measures to ensure ecosystem resilience. The Contractor shall also summarize social and economic factors that may hinder or promote adoption of these approaches. All components of this summary document are due no less than two weeks in advance of the meeting.

3. **Subject matter expertise:** to be provided as needed and as requested by the WAM and technical lead.

MANAGEMENT CONTROLS

Technical direction for this work assignment is provided by the work assignment statement of work and by the work plan developed by the Contractor to implement this work assignment (after it has been accepted and approved by the Contracting Officer and by the Contractor's designated management representatives). Periodic meetings between the WAM and Contractor work assignment managers are encouraged to discuss any questions that may arise during performance or completion of this work assignment. At the WAM's discretion, these meetings may occur via phone, formal teleconference or video conference. The Contractor shall document these meetings and submit copies of all correspondences to the WAM.

The Contractor shall meet with the WAM to present and discuss the work plan for this work assignment before it is approved by the CO.

OTHER REQUIREMENTS

Travel - EPA anticipates the need for non-local travel by the contractor employees and/or subcontractors to support the scope of this work assignment.

Confidential Business Information - The contractor shall, at all times, adhere to Confidential Business Information (CBI) procedures when handling industry information. The contractor shall manage all reports, documents, and other materials and all draft documents developed under this work assignment in accordance with the procedures set forth in the Office of Science and Technology Confidential Business Information (OST-CBI) Application Security Plan (June 10, 2003), or its successor approved plans.

Meetings - To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties or visiting field sites.

Event Expenses Not to Exceed $20,000 - No single event under this Work Assignment is anticipated to exceed $20,000. The Contractor shall immediately notify the Contracting Officer, PO and WAM of any anticipated event involving support for a meeting, conference, workshop, symposium, retreat, seminar or training that may potentially incur $20,000 or more in cost during performance. Conference expenses are all direct and indirect costs paid by the government and include any associated authorized travel and per diem expenses, room charges for official business, audiovisual use, light refreshments, registration fees, ground transportation and other expenses as defined by the Federal Travel Regulations. All outlays for conference preparation should be included, but the federal employee time for conference preparation should not be included. After notifying EPA of the potential to reach this threshold, the Contractor shall not proceed with the task(s) until authorized to do so by the Contracting Officer.

Limitation of Contractor Activities - The contractor shall submit drafts of all deliverables to the Work Assignment Manager (WAM) for review prior to submission of the final product. The contractor shall incorporate all WAM comments into all final deliverables, unless otherwise agreed upon by the WAM. The contractor shall adhere to all applicable EPA management control procedures as implemented by the Contracting Officer (CO), Project Officer (PO), and WAM.

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 2-57

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-12-021	09/26/2012 To 09/25/2015	Coastal Watershed Synthesis
	Base Option Period Number 2	

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [X] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 05/28/2015 To 09/25/2015

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*): ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
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Authorized Work Assignment Ceiling

	Cost/Fee:	LOE:
Contract Period: 09/26/2012 To 09/25/2015	$0.00	0
This Action:	$79,810.00	824
Total:	$79,810.00	824

Work Plan / Cost Estimate Approvals

	Cost/Fee:	LOE:
Contractor WP Dated: 06/24/2015	$79,810.00	824
Cumulative Approved:	$79,810.00	824

Work Assignment Manager Name: Karen Simpson (Signature) (Date)	Branch/Mail Code: Phone Number: 617-918-1672 FAX Number:
Project Officer Name: Meghan Hessenauer (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1040 FAX Number:
Other Agency Official Name: (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 2-58

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-12-021	09/26/2012 To 09/25/2015	Support for VMP Team
	Base Option Period Number 2	

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: See PWS

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [ ] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 06/17/2015 To 09/25/2015

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

SFO (*Max 2*): ☐

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
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Authorized Work Assignment Ceiling

Contract Period: 09/26/2012 To 09/25/2015 — Cost/Fee: — LOE:

This Action:

Total:

Work Plan / Cost Estimate Approvals

Contractor WP Dated: — Cost/Fee: — LOE:

Cumulative Approved: — Cost/Fee: — LOE:

Work Assignment Manager Name: Katherine Weiler (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1280 FAX Number:
Project Officer Name: Meghan Hessenauer (Signature) (Date)	Branch/Mail Code: Phone Number: 202-566-1040 FAX Number:
Other Agency Official Name: (Signature) (Date)	Branch/Mail Code: Phone Number: FAX Number:
Contracting Official Name: Brad Heath (Signature) (Date)	Branch/Mail Code: Phone Number: 513-487-2352 FAX Number:

Performance Work Statement
Contract EP-C-12-021
Work Assignment 2-58

Title: Support for the Vessels, Marinas, and Ports Team

Work Assignment Manager (WAM):

Katherine Weiler
US Environmental Protection Agency, OWOW/MPCB
Mail Code: 4504T
WJC – West Building
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Washington, DC 20460
202-566-1280
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Alternate Work Assignment Manager (AWAM):

Chris Laabs
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202-566-1223
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Period of Performance: June 17, 2015 to September 25, 2015

Background: The Office of Wetlands, Ocean, and Watersheds (OWOW) is one of four program offices within the Office of Water of the U.S. Environmental Protection Agency. The Oceans and Coastal Protection Division (OCPD) is one of three divisions within OWOW. Specifically, OCPD is responsible for protecting human health and our nation's ocean and coastal waters. OCPD uses a number of regulatory and non-regulatory tools to prevent pollution from entering the environment, reduce the risks associated with pollution, and improve water quality. The Marine Protection, Research, and Sanctuaries Act; Clean Water Act; Marine Plastics Pollution Research and Control Act; Water Resources Development Act; Shore Protection Act; Clean Vessel Act; National Environmental Policy Act; and Clean Air Act are some of the statutory authorities used by OCPD. OCPD also works with international treaties such as the London Dumping Convention and the International Convention for the Prevention of Pollution from Ships (MARPOL). In addition, OCPD works with other Federal agencies, state and local governments, public interest and industry groups, and mixed-government consortia to obtain the greatest environmental improvement. Benefits are maximized via the involvement and participation of appropriate environmental "stakeholders" and "partners."

Purpose: This Work Assignment (WA) provides overall support to the Vessels, Marinas, and Ports Team. The WA will support development of outreach and technical documents related to discharges and environmental issues related to vessels, ports, and marinas. Support will include determining and assessing the current practices for environmental protection and assessing the impacts of discharges on the aquatic environment.

In addition to general programmatic support, the contractor will locate and analyze available vessel sewage related data. Data collected and analyzed under this work assignment will help the Agency assess the efficacy of the current vessel sewage regulatory regime and the potential need for revisions to the performance standards for marine sanitation devices (MSDs) under Section 312 of the Clean Water Act.

General Work Assignment Requirements

A. Confidential Business Information: The Contractor will, at all times, adhere to Confidential Business Information (CBI) procedures, including those requirements listed at 40 CFR Part 2, when handling industry information that the EPAWAM identifies as CBI. When noted as necessary by the EPA COR, the Contractor will manage specified reports, documents, and other materials, as well as specified draft documents developed under this WA in accordance with the procedures set forth in its "Security Plan for Handling Confidential Business Information Under the Clean Water Act (CWA)," dated March 5, 2004 or its successor approved plans.

B. Identification as Contractor Staff: To avoid the perception that contractor personnel are EPA employees, Contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties and visiting field sites. When speaking with the public the contractor should refer all interpretations of policy to the WAM.

C. Limitation of Contractor Activities: The Contractor shall submit drafts of all deliverables to the WAM and alternate EPA COR for review. The contractor shall incorporate all WAM comments into the final deliverables, unless otherwise agreed upon by the WAM. The Contractor shall adhere to all applicable EPA management control procedures as implemented by the EPA Contracting Officer (CO), Contract Level Contracting Officer Representative (PO), and Work Assignment Contracting Officer Representative (WAM).

D. Compliance with Section 508 Requirements: Section 508 of the Rehabilitation Act mandates that all Federal departments and agencies make electronic and information technology accessible to individuals with disabilities. This includes all individuals with disabilities wishing to access Federal information. EPA is committed to making every possible effort to ensure that all electronic and information technology developed, procured, maintained, or used by EPA is accessible to all persons with disabilities. Consequently, according to the contract clause "EPAAR 1552.2119-79: Compliance with EPA Policies for Information Resources Management," all deliverables submitted by the Contractor shall be compliant with the Section 508 requirements.

E. Travel: When travel outside of the local area becomes necessary in support of this WA, a travel authorization must be submitted to and approved by the WAM and the EPA LCCOR prior to the travel taking place. All travel shall be in accordance with FAR 31.205-46.

F. Draft and Deliverable format: All memos, draft comments, summaries and responses are to be provided electronically in Microsoft Word and/or Excel. The contractor shall clearly specify the methods, procedures, considerations, assumptions, relevant citations, data sources and data that support its conclusions. EPA will review all outputs in draft form, and the contractor shall incorporate the changes specified by EPA prior to providing a final version. All final materials, e.g., memos, tables, spreadsheets, etc. are to be prepared only after incorporating comments on draft documents provided by the WAM. Final materials shall be submitted electronically in MS Word, Excel or PowerPoint (including track changes versions) and in pdf form. No documents produced by the contractor for EPA under this work assignment shall be proprietary.

G. Meetings: To avoid the perception that contractor personnel are EPA employees, contractor personnel shall be clearly identified as independent contractors of EPA when participating in events with outside parties or visiting field sites. NOTE: This Work Assignment has received authorization to proceed with the meeting exceeding $20,000. (No single event under this Work Assignment is anticipated to exceed $20,000. The Contractor shall immediately notify the EPA Contracting Officer, PO and WAM of any anticipated event involving support for a meeting, conference, workshop, symposium, retreat, seminar or training that may potentially incur $20,000 or more in cost during performance. Conference expenses are all direct and indirect costs paid by the government and include any associated authorized travel and per diem expenses, room charges for official business, audiovisual use, light refreshments, registration fees, ground transportation and other expenses as defined by the Federal Travel Regulations. All outlays for conference preparation should be included, but the federal employee time for conference preparation should not be included. After notifying EPA of the potential to reach this threshold, the Contractor shall not proceed with the task(s) until authorized to do so by the Contracting Officer.)

H. Quality Assurance: The Contractor shall adhere to its Quality Management Plan that is customized for this contract and incorporated in this contract. This Work Assignment involves the use of existing data. EPA policy requires that an *approved* Quality Assurance Project Plan (QAPP) be in place before any work begins that involves the collection, generation, evaluation, analysis or use of environmental data.

- Under no circumstances shall work that involves the generation, collection, evaluation, analysis, or use of environmental data be performed until the Contractor receives written notification from the EPA COR that EPA has approved the Contractor's QAPP.
- Any non-sampling/non-analytical work that involves the generation, collection, evaluation, analysis, or use of environmental data that is initiated prior to EPA approval of the Contractor's QAPP must be performed in accordance with the approved QAPP. EPA may request the Contractor to furnish written documentation

from the Contractor showing that the Contractor has complied with this requirement.

The Contractor shall write a Project QAPP that addresses systematic planning for this Work Assignment. The contractor shall use the active voice. The QAPP shall provide enough detail to clearly describe objectives of the project supported by the Work Assignment; the type of data to be collected, generated, or used under this Work Assignment to support the project objectives; the quality objectives needed to ensure that these will support the project objectives; and the quality assurance and quality control activities to be performed to ensure that any results obtained are documented and are of the type, quality, transparency, and reproducibility needed.

The QAPP must be consistent with the document, *EPA Requirements for Quality Assurance Project Plans: EPA QA/R-5* (**http://www.epa.gov/quality/qs-docs/r5-final.pdf**). The QAPP shall include any SOPs or checklists. The Contractor shall use the attached QAPP Template for existing data. The Contractor shall provide a crosswalk between the submitted QAPP and this template if the Contractor follows a different format. The Contractor shall comply with all QA/QC requirements set forth in the QAPP.

In addition, the Contractor shall include a separate and identifiable discussion in all reports (deliverables) about the quality of the data, and summarize the QA/QC activities that were or will be used to ensure and confirm the usability of the data for the project, identify any deviations from QA protocols (e.g., from the QAPP), problems encountered and corrective actions taken, and any limitations on the usability of the data for the purposes intended.
The Contractor also shall comply with the following procedural requirements related to compliance with the QAPP:

- The Contractor shall submit all drafts and final QAPP in Microsoft Word format, and in tracked changes as appropriate. The Contractor may also submit these documents in PDF format.

- The Contractor shall notify the WAM if it determines that changes to the QAPP are warranted (e.g., due to organizational changes, revised technical approaches, or other unforeseen circumstances).

- If, during the Period of Performance of this WA, the WAM provides technical direction that revisions to the QAPP are necessary, the Contractor shall follow all procedures and requirements set forth for development of the original QAPP, as specified above. The Contractor shall include a version history page that summarizes changes made. The Contractor also shall provide EPA with copies of any modified SOPs or checklists.

- All QA documentation prepared under this WA, shall be considered non-proprietary, and shall be made available to the public upon request.

As this work assignment will use only existing secondary sources of data, the contractor may want to consider referencing the EPA New England Quality Assurance Project Plan Guidance For Environmental Projects Using Only Existing(Secondary) Data (PDF) (10 pp, 128K) US EPA New England Region, Revision 2, October 13, 2009, when drafting the QAPP.

Description of Tasks

Task 1: Project Management

The Contractor shall prepare a work plan within 30 calendar days of receipt of WA. The work plan shall present the technical approach by task; the project schedule and deliverables; staffing details; level of effort by task, staff member, and professional labor mix; and the estimated budget.

The Contractor shall prepare a Quality Assurance Project Plan (QAPP) for secondary (existing) data handling and analysis. No collection of field samples will be collected under this work assignment.

The Contractor shall provide electronic copies of the monthly progress reports to the EPA Contract Level Contracting Officer Representative (PO) (previously titled Project Officer (PO)) and Work Assignment Contracting Officer Representative (WAM). Each progress report shall describe the technical work and expenditures for the same time period as the corresponding invoice. The reports shall list by task the amount of work completed and include a table of hours by personnel for each task. The reports also shall identify any problems or difficulties, lessons learned, Quality Assurance (QA)/Quality Control (QC) activities, and next steps.

The Contractor shall submit an email that proposes a standardized naming convention and version control for all deliverables associated with the WA. This system will ensure that deliverables are clearly named and dated and that the sequence of versions of a document is clear. The WAM will review the email and then provide the Contractor with written notification of approval or edits that need to be made. After receiving notification of approval the contractor shall use this standardized convention for all deliverables associated with the work assignment.

The Contractor shall immediately notify the WAM by telephone of any problems that may impede performance, along with any corrective actions needed to solve the problems.

TASK 1 – Deliverables and Schedule	
Deliverable	Deadline
1.1 - Work plan, with budget, and draft Quality Assurance Project Plan (QAPP)	In accordance with contract requirements
Final Quality Assurance Project Plan	Within one week of receipt of EPA's written comments on the draft QAPP, unless otherwise directed by the WAM
1.2 - Progress/budget/QA reports	Included in the Monthly Technical and Cost Progress Report
1.3 - Problem report	Contractor shall notify the WAM immediately upon discovery of a problem

Task 2: General Technical Support

(a) The Contractor shall provide approximately 50 hours of technical support for responding to inquiries from senior management, or the public on matters related to sewage pollution from vessels, marinas, and ports. The Contractor's responses shall include pertinent information gathered or developed by the Contractor, as well as information provided by the WAM. The WAM will specify the extent of the contractor's information gathering or development through written technical direction. Contractor responses may include data displays, summary reports, meeting materials, and any supporting records.

TASK 2 – Deliverables and Schedule	
Deliverable	Deadline
General technical support	Schedule will be specified upon receiving written technical direction

Task 3: Locate, organize, and create an electronic PDF library for vessel sewage information (e.g., FR Notices, Guidance Documents, Policy Statements) in regards to NDZs and MSDs

(a) The contractor shall search through EPA's NDZ website and the FR archives to identify and PDF all FR notices related to NDZs. The files should be organized by date and EPA Regions. The majority are already available on EPA's NDZ website.
(b) The contractor shall search through FR Notices, Cornell Law, Fastcase and other sources for guidance documents and statements of policy regarding vessel sewage from MSDs and the designation and use of NDZs under CWA Section 312.
(c) The contractor shall search through FR Notices, Cornell Law, Fastcase and other sources for guidance documents and statements of policy regarding vessel sewage as it relates to CWA 301 and 402.
(d) The contractor shall sort, organize, and PDF as appropriate hard copy files in OCPD/OWOW related to vessel sewage. Files to be provided.

TASK 3 – Deliverables and Schedule	
Deliverable	Deadline
Develop draft organization for electronic filing system	30 business days after workplan approval
Final electronic filing system	30 business days after WAM provides comments on the draft filing system

Task 4: Update the Manufacturing Spreadsheet (Attachment 1) with the manufacturing details associated with approved MSDs

The Contractor shall update the performance test data (tests conducted from January 1, 2004 to present) for marine sanitation devices (MSDs) certified to meet the performance standards and testing requirements, as described at 33 C.F.R. Part 159.

The Contractor shall update performance test data for sewage treatment plants (STPs) certified to meet the MARPOL Annex IV effluent standards and performance tests adopted by the Marine Environment Protection Committee (MEPC) in the following resolutions:

- MEPC.2(VI) on December 3, 1976, or
- MEPC.159(55) on October 13, 2006, or
- MEPC. 227(64) on October 5, 2012.

EPA will provide the Contractor with the existing spreadsheet electronically. The Contractor may modify or supplement the example spreadsheet, but shall submit a draft spreadsheet with any proposed modifications to the WAM for approval.

The final product shall include product information and performance data of the systems (MSDs and STPs) including, but not limited to, the following information:

General Product Information	**Performance Data**
- Manufacturer name and contact information (address, phone/fax number, e-mail address, website address) - Model name/number - Date letter of certification/type approval certificate was issued (and copy, if available) - Approval status (Approved, Expired, Former – Do Not Use, Former – May Use) (MSD only) - Approval number (MSD only) (in gallons per day) - Rated capacity - Dilution factor (if any) - Pretreatment method (if any) - Treatment method (if any) - Disinfection method (if any) - Cost (equipment price; annual operating and maintenance cost; maintenance	- Certification testing date(s) - Influent and effluent total suspended solids concentrations - Influent and effluent fecal coliform concentrations - Influent and effluent thermotolerant coliform concentrations - Influent and effluent E. coli concentrations - Influent and effluent five-day biological oxygen demand (BOD_5) - Influent and effluent chemical oxygen demand - Effluent pH - Effluent total residual chlorine/total residual oxidant - Number of samples collected - Number of zero or non-detected values (include method detection limit (MDL) and method reporting limit (MRL))

schedule, installation cost (new vs retrofit) - Type I, II or III (MSD only) - Certifying country/body - Testing methodology/testing protocol - System designed for graywater only, sewage only, or graywater and sewage - Information regarding the volume of process water added per unit volume of raw influent - Testing location (laboratory or on vessel)	- Laboratory name and contact information (address, phone/fax number, e-mail address) -

TASK 4 – Deliverables and Schedule	
Deliverable	Deadline
Draft electronic spreadsheet	Within 45 business days of WA approval
Final electronic spreadsheet	Within 20 business days after WAM provides comments on the draft spreadsheet

Task 5: Conduct a literature review for documents containing product information and performance test data for marine sanitation devices and sewage treatment plants

The Contractor shall conduct a literature review for documents/literature articles containing performance data (January 1, 2010 to present) for new marine sanitation devices (MSDs), and vessel Sewage Treatment Plants (STPs) that meet or exceed the domestic or international performance standards.

The Contractor shall include in this review relevant scientific, technical and academic journals, magazines and publications, as well as relevant trade publications and other industry sources. The Contractor shall also review relevant class society and government websites and databases pertaining to the certification of MSDs or STPs, including the U.S. Coast Guard's Maritime Information Exchange (CGMIX) database (available at http://cgmix.uscg.mil/Default.aspx). The Contractor shall use scientific databases such as "Science Direct," "Cambridge Science Abstracts," and "Web of Science."

The Contractor shall document the procedures used to conduct the literature search. Such documentation shall include the names of databases, search engines, or registers used.

The Contractor shall create an indexing system to organize the documents and information obtained. The indexing system should include the following information:

- The title, author and publication date of the document;
- The type of document (e.g., journal, government agency, class society, or manufacturer publication);
- Provides appropriate citation for the document (web address, journal information, or agency document number); and
- Briefly summarizes what general product information and performance data is contained in the document (*see* table under Task 4 for needed information and data).

TASK 5– Deliverables and Schedule	
Deliverable	Deadline
Perform literature review	Within 14 business days of WP approval
Draft indexing system proposal	Within 21 business days
Final indexing and corresponding documents obtained during literature review	Within 21 business days after WAM provides comments on the draft indexing proposal

Task 6: Update the Pollutant Load Scenarios Spreadsheet (Attachment 2). Create an NDZ template tool that can be used by a State or EPA to calculate total vessel sewage loads within prodiscrete waterbodies

The Contractor shall update the existing pollutant load scenarios spreadsheet. The Contractor shall create a standardized tool to be used by States interested in establishing a NDZ for sewage. The standardized tool should be an easy to use "spreadsheet" that allows states and environmental organization to input pertinent data regarding the number and types of vessels operating in a waterbody to produce an overall estimate of the volume of untreated and treated sewage entering the waterbody.

TASK 6 – Deliverables and Schedule	
Deliverable	Deadline
Updated spreadsheet	Within 30 business days after workplan approval
Draft electronic tool	Within 60 business days after completing updated spreadsheet
Final electronic tool	Within 20 business days after WAM provides comments on the draft electronic tool

Task 7: Assess commercial vessel pump out facilities

Develop white paper that analyzes commercial vessel pump out facilities. Analysis should at a minimum include both fixed pump-out facilities and pump-out vehicles. White paper should include but not be limited to answering the questions below:

- What types of commercial pump-out facilities exist?
- What are the costs associated with using a commercial pump-out facility?

- What are the costs associated with building a commercial pump-out facility?
- How do commercial pump-outs differ from recreational pump-out facilities?

TASK 7 – Deliverables and Schedule	
Deliverable	Deadline
Draft White Paper	Within 60 business days of after workplan approval
Final White Paper	Within 20 business days after WAM provides comments on the draft white paper

Task 8: Great Lakes Assessment

Develop a white paper that analyzes the vessel population operating in the Great Lakes. Analysis should rely on existing literature including but not limited to FR notices developed for existing NDZs in the Great Lakes. White paper should include but not be limited to answering the questions below:

- How many and what types of vessels enter the GL from outside the basin?
- How many and what types of vessels operate solely within the GL basin?
- Based on the types of vessels operating in the GL basin what is the likely percentage of the types of treatment systems in use within the GL basin? How many vessels are using holding tanks? How many vessels are using Type 1 vs. Type 2?

Using the tool created in Task 6, estimate the volume of sewage generated in the Great Lakes by vessels operating in the basin only and by the vessels that travel in and out of the basin.

TASK 8 – Deliverables and Schedule	
Deliverable	Deadline
Draft White Paper	Within 75 business days of after workplan approval
Final White Paper	Within 90 business days after WAM provides comments on the draft white paper

EPA

United States Environmental Protection Agency
Washington, DC 20460

Work Assignment

Work Assignment Number: 2-58

☐ Other ☐ Amendment Number:

Contract Number	Contract Period	Title of Work Assignment/SF Site Name
EP-C-12-021	09/26/2012 To 09/25/2017 Base Option Period Number 2	Support for VMP Team

Contractor: EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW: 4.0

Purpose:
- [X] Work Assignment
- [ ] Work Assignment Amendment
- [X] Work Plan Approval
- [ ] Work Assignment Close-Out
- [ ] Incremental Funding

Period of Performance: From 06/17/2015 To 09/25/2015

Comments:

☐ Superfund — Accounting and Appropriations Data — [X] Non-Superfund

SFO (*Max 2*): ☐

Note: To report additional accounting and appropriations date use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code
1										
2										
3										
4										
5										

Authorized Work Assignment Ceiling

	Contract Period	Cost/Fee	LOE
	09/26/2012 To 09/25/2017	$0.00	0
This Action:		$59,921.00	611
Total:		$59,921.00	611

Work Plan / Cost Estimate Approvals

		Cost/Fee	LOE
Contractor WP Dated:	07/14/2015	$59,921.00	611
Cumulative Approved:		$59,921.00	611

Work Assignment Manager Name: Katherine Weiler (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-566-1280
	FAX Number:	
Project Officer Name: Meghan Hessenauer (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	202-566-1040
	FAX Number:	
Other Agency Official Name (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	
	FAX Number:	
Contracting Official Name: Brad Heath (Signature) (Date)	Branch/Mail Code:	
	Phone Number:	513-487-2352
	FAX Number:	

Working Copy